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ILLINOIS FARM ECONOMICS

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Index to Numbers 1 to 70

TOPIC INDEX

Agricultural situation

- Total agricultural production will be changed by new Soil Conservation Program (J. E. Wills and Case)—Apr. 1936, 51
- Phases in the agricultural situation (Ross)—Mar.-Apr. 1938, 157 (tables)
- Measures of agricultural and business conditions—July 1938, 185

Apples

- Apple situation (Ekstrom)—Nov. 1938, 209 (table)
- Factors affecting the apple situation—Oct. 1939, 271 (tables)
- See also Horticultural products*

Business conditions

- Business conditions—June 1935, 1
- Business conditions and Illinois farm prices—July 1935, 5
- Increase in factory payrolls greater than retail food prices (Caskey)—July 1935, 8
- Proportion of national income received by farmers (Bartlett)—July 1935, 9
- Unemployment and factory payrolls—Aug. 1935, 13
- National debt—Aug. 1935, 14
- Increase in purchasing power of Illinois farmers—Sept. 1935, 17
- General business conditions—Nov. 1935, 29
- General business conditions and Illinois farm prices—Jan. 1936, 37 (table)
- Business outlook—Aug. 1936, 73
- Business conditions (Bartlett)—Sept.-Oct. 1936, 77
- General business conditions—Nov. 1936, 85
- Domestic business conditions—Jan.-Feb. 1937, 93
- Business conditions—Mar.-Apr. 1937, 101
- General business conditions—July-Aug. 1937, 122
- General situation (Bartlett)—Sept.-Oct. 1937, 129
- Credit used by Illinois farmers (Norton and Ackerman)—Sept.-Oct. 1937, 134 (table)
- Implications of recent money and credit developments (Jordan)—Feb. 1938, 152
- Business situation (Bartlett)—June 1938, 173
- Measures of agricultural and business conditions—July 1938, 185
- Price inflation: Causes and prospects—Part I. Causes of inflation (Working)—Nov. 1939, 277
- Price inflation: Causes and prospects—Part II. Prospects for inflation (Working)—Dec. 1939, 289
- Course of the price level (Working)—Apr. 1940, 341
- Is inflation imminent? (Working)—Oct. 1940, 409
- Indexes of United States agricultural and business conditions—*see* tables on last page of each issue

Butter

- Comparison of whole milk and butter prices in the St. Louis milkshed—Jan. 1936, 39
- Premiums for high-quality cream and butter (Brown)—May-June 1937, 115
- Wholesale prices of market milk, condensed milk, and cheese as related to butter prices (Bartlett)—Oct. 1938, 201 (table)
- See also Dairy products*

Cattle

- Cattle on feed—Sept. 1935, 19
- Beef cattle prospects—Aug. 1936, 74
- Cattle importations—Aug. 1936, 74
- Profits from feeding fall-purchased steers (Bachman and Working)—Sept. 1938, 193
- Cattle and sheep on feed—Jan. 1939, 217
- Consumers and graded beef (Ashby and Hedlund)—Feb. 1940, 317
- Beef cattle cycle (Hughes)—Apr. 1940, 333
- Prospects for cattle feeding in the light of an index of cattle feeding profits (Working)—Aug. 1940, 381
- See also Livestock*

Cheese

Wholesale prices of market milk, condensed milk, and cheese as related to butter prices (Bartlett)—Oct. 1938, 201 (table)

See also Dairy products

Cold storage

Cold storage holdings—July 1935, 6

Standards for cold storage locker plants (Searls)—Apr. 1940, 338 (tables)

Cooperatives

A survey of Illinois cooperative marketing and purchasing associations (Simerl and Norton)—July 1938, 183

Eastern corn belt farmers' cooperative shifts emphasis to meet changing conditions (Freemyer)—Oct. 1939, 273 (tables)

Corn

Condition of corn crop—Sept. 1935, 19

Corn prices in years of short crops (Working)—Sept.-Oct. 1936, 81 (table)

Seasonal types of corn price movements (Working)—Nov.-Dec. 1937, 137

Loans on sealed corn (Norton)—Nov.-Dec. 1937, 142

Corn exports (Norton)—Feb. 1938, 151

Argentine corn crops and exports of United States corn (Norton)—Mar.-Apr. 1938, 160

1938 corn acreage allotments (Working)—June 1938, 178 (tables)

An interpretation of the present corn situation (Norton)—Oct. 1938, 199

Corn exports (Norton)—Mar. 1939, 230

Corn price situation (Working and Jordan)—Oct. 1939, 269

Premiums for white corn (Jordan)—Dec. 1939, 297 (table)

Cost of producing corn (Wilcox)—Jan. 1940, 304 (table)

Changes in corn and hog production in the South (Working)—May 1940, 352 (tables)

Effects of uniformity of corn loans, regardless of location (Norton)—Dec. 1940, 437 (tables)

See also Crop conditions

Costs

Home costs

More money spent by farm families in 1935 (Freeman)—Apr. 1936, 49

Labor costs

Labor, horse, and machinery expenses (Johnston)—Oct. 1935, 25 (table)

Recent trends in power and labor costs on Illinois farms (Johnston)—Apr.-May 1939, 241 (table)

Some effects of mechanization on amounts and costs of farm labor (Ross)—Oct. 1940, 417 (tables)

Marketing costs

Relation of seasonal milk production to costs of production and marketing (Caskey)—Apr. 1936, 54

Cost of handling grain by Illinois elevators (Norton)—May 1940, 351 (tables)

Increasing milk consumption by lowering distribution costs (Bartlett)—Nov. 1940, 421

Power and machinery costs

Labor, horse, and machinery expense (Johnston)—Oct. 1935, 25 (table)

Costs of harvesting with combines (Ross and Hurt)—Sept.-Oct. 1936, 79 (tables)

Combine harvester costs for 1937 (Ross and Hurt)—May 1938, 167 (tables)

Harvesting costs reduced by use of mechanical corn pickers (Gehlbach)—Nov. 1938, 205 (table)

Recent trends in power and labor costs on Illinois farms (Johnston and Wilcox)—Apr.-May 1939, 241 (table)

Cost of operating tractors in central Illinois, 1938 (Johnston)—Feb. 1940, 314 (tables)

Production costs

Relation of seasonal milk production to costs of production and marketing (Caskey)—Apr. 1936, 54

Cost of producing soybeans (Wilcox)—Dec. 1939, 295 (table)

Cost of producing corn (Wilcox)—Jan. 1940, 304 (table)

Cost of producing hogs (Wilcox)—Mar. 1940, 326 (table)

Cost of producing oats (Wilcox)—May 1940, 347 (table)

Cost of producing milk in Chicago and St. Louis milksheds (Wilcox)—June 1940, 363 (tables)

Costs—concluded

Crop costs in Illinois in 1939 (Wilcox)—Sept. 1940, 405 (table)
Relative profitableness of crops (Wilcox)—Dec. 1940, 446 (tables)

Cream

Premiums for high-quality cream and butter (Brown)—May-June 1937, 115
See also Dairy products

Credit

Credit used by Illinois farmers (Norton and Ackerman)—Sept.-Oct. 1937, 134 (table)
Implications of recent money and credit developments (Jordan)—Feb. 1938, 152
Planning investment and credit program for the family (Norton)—Jan. 1941, 457

Crop conditions

Illinois conditions—July 1935, 5
Crop conditions in Illinois—Aug. 1935, 15
Illinois conditions—Oct. 1935, 21
Crop conditions—July 1936, 69 (tables)
Indicated crop acreages for 1937—Mar.-Apr. 1937, 101 (tables)
Agricultural conditions—July-Aug. 1937, 122 (tables)
Crop prospects—July 1938, 181 (tables)
Crop costs in Illinois in 1939 (Wilcox)—Sept. 1940, 405 (table)
Relative profitableness of crops (Wilcox)—Dec. 1940, 446 (table)
See also Corn, Grain, Oats, Soybeans, and Wheat

Dairy products

Dairy situation—June 1935, 3
Dairy outlook—Aug. 1936, 75
Relation of international trade agreements to incomes of dairy producers (Bartlett)—
Jan.-Feb. 1937, 93 (tables)
Consideration in governmental price control of dairy products (Bartlett)—Feb. 1939, 222
Prospects for exports of dairy products (Bartlett)—Jan. 1940, 301 (tables)
Landlord-tenant problems in the St. Louis milkshed (Case and Hannah)—June-July
1939, 247
See also Butter, Cheese, Cream, and Milk

Debts

National debt—Aug. 1935, 14
Cash incomes and debt ratios of Illinois farmers in 1935 (Norton and Sayre)—May-
June 1937, 112 (tables)
Mortgage debt and land use in Cumberland county (Smith and Norton)—July 1940,
376 (table)

Eggs

Poultry and egg outlook—Aug. 1936, 75
Recent seasonal and other short-time movements of poultry and egg prices
(Jordan)—Dec. 1940, 448

Expenses

See Costs

Exports

Decline in value of agricultural exports continued (Ross)—Oct. 1935, 27 (table)
Corn exports (Norton)—Feb. 1938, 151
Argentine corn crops and exports of United States corn (Norton)—Mar.-Apr. 1938,
160
Corn exports (Norton)—Mar. 1939, 230
Prospects for exports of dairy products (Bartlett)—Jan. 1940, 301 (tables)
Prospects for exports of grain and livestock products (Norton)—Jan. 1940, 303

Farm management

Variations in farm organization associated with variations in proportions of tillable
land in hay and pasture in northern Illinois, 1936 (Schruben)—Dec. 1940, 439
(tables)
Father-son farm business relationships (Case and Hannah)—Mar. 1939, 231 (table)
Needed: Flexible cash rent (Case)—Nov. 1939, 285
Opportunities and problems of the small farm (Ross)—May 1940, 345
Some farm-land inheritance facts, Champaign county, Illinois, 1860-1939 (Houghton
and Stewart)—Nov. 1940, 432
See also Costs, Income, and Land

Farm products

Prices of Illinois farm products—*see* table on last page of each issue

Farm products (Ross)—Sept.-Oct. 1937, 131 (table)

Price movements of selected farm products in 1914 and 1939 (Jordan)—Sept. 1939, 261

See also Apples and Peaches; Corn, Feed, Grain, Oats, Soybeans, and Wheat; Butter, Cheese, Cream, and Milk; Poultry and Eggs; and Cattle, Hogs, and Sheep

Federal programs

AAA

Influence of AAA Programs on land use and farm incomes, Illinois accounting farms, 1938 and 1939 (Johnston)—Sept. 1940, 398

Soil conservation

Total agricultural production will be changed by new Soil Conservation Program (J. E. Wills and Case)—Apr. 1936, 51

"Crooked farming" leads straight to profits (Sauer)—Jan. 1939, 218 (tables)

Farm account records and surveys indicate financial benefits of soil conservation practices (Sauer)—Aug. 1940, 387 (tables)

Feed

Balancing supplies of feed grains and livestock numbers in 1936—Feb. 1936, 41

Feed supplies—Aug. 1936, 73 (table)

Grain supplies and livestock on feed (Johnston)—Jan. 1938, 145 (tables)

Cattle and sheep on feed—Jan. 1939, 217

Relative amounts of grain and roughage used by different classes of livestock (Mosher)—June 1940, 360 (table)

Prospects for cattle feeding in the light of an index of cattle feeding profits (Working)—Aug. 1940, 381

Outlook for feed grains and soybeans (Norton)—Oct. 1940, 412

Food

Increase in factory payrolls greater than retail food prices (Caskey)—July 1935, 8

Food supply for 1935-36—Nov. 1935, 30

Foreign trade

Decline in value of agricultural exports continued (Ross)—Oct. 1935, 27 (table)

Trade agreement between United States and Canada—Dec. 1935, 33 (table)

First results of the trade agreement between United States and Canada—May-June 1936, 59 (table)

Cattle importations—Aug. 1936, 74

Relation of international trade agreements to income of dairy producers (Bartlett)—Jan.-Feb. 1937, 93

Corn exports (Norton)—Feb. 1938, 151

Argentine corn crops and exports of United States corn (Norton)—Mar.-Apr. 1938, 160

Some features of the recent trade agreement with Canada and United Kingdom (Norton)—Dec. 1938, 213 (tables)

Corn exports (Norton)—Mar. 1939, 230

Prospects for exports of dairy products (Bartlett)—Jan. 1940, 301 (tables)

Prospects for exports of grain and livestock products (Norton)—Jan. 1940, 303

Grain

Balancing supplies of feed grains and livestock numbers in 1936—Feb. 1936, 41

Grain supplies and livestock on feed (Johnston)—Jan. 1938, 145 (tables)

Grain stocks on farms—Jan. 1939, 218 (table)

Some recent changes in transportation of grain (Norton)—Apr.-May 1939, 239

Prospects for exports of grain and livestock products (Norton)—Jan. 1940, 303

Cost of handling grain by Illinois elevators (Norton)—May 1940, 351 (tables)

Water and truck transportation of Illinois grain (Norton)—June 1940, 357

Relative amounts of grain and roughage used by different classes of livestock (Mosher)—June 1940, 360 (table)

Outlook for feed grains and soybeans (Norton)—Oct. 1940, 412

See also Crop conditions

Hogs

Hog situation—June 1935, 3

June 1 pig crop report—July 1935, 6

Prices of hogs and hog products as affected by removal of processing tax—Feb. 1936, 41

Hogs—concluded

June pig crop report—July 1936, 71

Hog outlook—Aug. 1936, 74

How many hogs do we need? (Johnston)—Oct. 1938, 197 (table)

Hog situation—Feb. 1939, 222

Recent hog price movements in the light of supply and demand conditions (Working)—Mar. 1940, 321 (table)

Cost of producing hogs (Wilcox)—Mar. 1940, 326 (table)

Changes in corn and hog production in the South (Working)—May 1940, 352 (tables)

Hog production and market prospects (Working)—Feb. 1941, 469

See also **Livestock**

Horses

Labor, horse, and machinery expenses (Johnston)—Oct. 1935, 25 (table)

Trends in use of power on accounting farms in Illinois (Johnston)—May 1938, 165 (tables)

Recent trends in power and labor costs on Illinois farms (Johnston and Wilcox)—Apr.-May 1939, 241 (table)

See also **Livestock**

Horticultural products

Influence of weather on demand for certain horticultural products (Lloyd)—Aug. 1940, 394

See also **Apples and Peaches**

Imports

Cattle importations, Aug. 1936, 74

Income

Proportion of national income received by farmers (Bartlett)—July 1935, 9

Post-war losses to farmers greater than war-time gains—Nov. 1935, 30

Farm earnings improved slightly in 1935 (Johnston)—Apr. 1936, 50 (table)

Farmer's share of the consumer's dollar—May-June 1936, 57 (table)

Relation of international trade agreements to incomes of dairy producers (Bartlett)—Jan.-Feb. 1937, 93 (tables)

Illinois farm incomes increased in 1936 (Johnston)—May-June 1937, 109 (tables)

Cash incomes and debt ratios of Illinois farmers in 1935 (Norton and Sayre)—May-June 1937, 112 (tables)

Cash farm incomes increasing—May-June 1937, 119 (tables)

Prospects for farm income (Working)—May 1938, 168

Illinois farm earnings decline in 1937 (Johnston)—June 1938, 176 (table)

Profits from feeding fall purchased steers (Bachman and Working)—Sept. 1938, 193

Cash farm income, 1938—Jan. 1939, 217 (table)

Sources and uses of farmers' income (Thompson and Case)—Apr.-May 1939, 237 (tables)

Land values in relation to farm earnings (Case)—Nov. 1939, 281

Intensive versus extensive farming as a means of increasing farm earnings (Mosher)—Feb. 1940, 311 (tables)

Prospects for cattle feeding in the light of an index of cattle feeding profits (Working)—Aug. 1940, 381

Farm account records and surveys indicate financial benefits of soil conservation practices (Sauer)—Aug. 1940, 387 (tables)

Sources and uses of Illinois farmers' income, 1939 (Searls)—Sept. 1940, 397

Influences of AAA programs on land use and farm incomes, Illinois accounting farms, 1938 and 1939 (Johnston)—Sept. 1940, 398

Recent developments in farm income (Working)—Nov. 1940, 428

Effect of increased roughage production on farm income (Johnston)—Jan. 1941, 453 (tables)

Industrial production

Meat packing industry not decentralizing—May-June 1936, 59 (table)

A new index of industrial production per capita (Warren and Working)—Dec. 1938, 215

Revised index of industrial production (Warren)—Nov. 1940, 434

See also **Business conditions**

Inflation

Price inflation: Causes and prospects—Part I. Causes of inflation (Working)—Nov. 1939, 277

Inflation—concluded

Price inflation: Causes and prospects—Part II. Prospects for inflation (Working)—Dec. 1939, 289

Is inflation imminent? (Working)—Oct. 1940, 409

Investment

Planning investment and credit program for the family (Norton)—Jan. 1941, 457

Labor

Increase in factory payrolls greater than retail food prices (Caskey)—July 1935, 8

Unemployment and factory payrolls—Aug. 1935, 13

Changes in factory payrolls for specific Illinois markets (Bartlett)—Oct. 1935, 21

Labor, horses, and machinery expenses (Johnston)—Oct. 1935, 25 (table)

Trends in use of power on accounting farms in Illinois (Johnston)—May 1938, 165 (tables)

Recent trends in power and labor costs on Illinois farms (Johnston and Wilcox)—Apr.-May 1939, 241 (table)

Some effects of mechanization on amounts and costs of farm labor (Ross)—Oct. 1940, 417 (tables)

Land

More farms in Illinois (Case)—July 1935, 7

Land tenure in Illinois (Ackerman and Stewart)—Apr. 1936, 52 (table)

Shifting real estate values in Illinois (Stewart and W. J. Wills)—Sept.-Oct. 1936, 80

Yield dependability in rating Illinois farm land (Stewart and W. J. Wills)—Jan.-Feb. 1937, 97 (tables)

Indicated acreages for 1937—Mar.-Apr. 1937, 101 (tables)

Farm land rented in Illinois townships (Stewart and Ackerman)—July-Aug. 1937, 125 (table)

1938 corn acreage allotments (Working)—June 1938, 178 (tables)

Continued upward trend in Illinois land values (Stewart and Mutti)—Nov. 1938, 207

Tenancy not fully wedded to land values (Stewart)—June-July 1939, 250

Land values in relation to farm earnings (Case)—Nov. 1939, 281 (table)

Illinois land ratings as an aid in land assessments (Stewart)—Jan. 1940, 306

Opportunities and problems of the small farm (Ross)—May 1940, 345

Ownership of rented land in east-central Illinois (Scofield)—May 1940, 349 (tables)

Mortgage debt and land use in Cumberland county (Smith and Norton)—July 1940, 376 (table)

Influence of AAA programs on land use and farm incomes, Illinois accounting farms, 1938 and 1939 (Johnston)—Sept. 1940, 398

Some farm-land inheritance facts, Champaign county, Illinois, 1860-1939 (Houghton and Stewart)—Nov. 1940, 432

Variations in farm organization associated with variations in proportions of tillable land in hay and pasture in northern Illinois, 1936 (Schruben)—Dec. 1940, 439 (tables)

War and its effect on land prices (Stewart)—Feb. 1941, 475

Factors influencing land use in Vermilion county (Smith and Norton)—Mar. 1941, 492

See also **Farm management** and **Tenancy**

Legislation

An analysis of Illinois legislation relative to consolidation of political units (Hannah)—Mar. 1941, 495

Livestock

Balancing supplies of feed grains and livestock numbers in 1936—Feb. 1936, 41

Numbers of livestock on farms—Mar. 1936, 46 (table)

Livestock conditions—July 1936, 70

Grain supplies and livestock on feed (Johnston)—Jan. 1938, 145 (tables)

Livestock on farms, Jan. 1, 1938 (Ross)—Feb. 1938, 149 (tables)

Livestock situation (Johnston)—Aug. 1938, 189

Livestock on farms—Feb. 1939, 221 (table)

Farm accounts indicate increasing livestock production (Johnston)—Mar. 1939, 229

Prospects for exports of grain and livestock products (Norton)—Jan. 1940, 303

Illinois livestock production on increase (Johnston)—Mar. 1940, 328

Relative amounts of grain and roughage used by different classes of livestock (Mosher)—June 1940, 360 (table)

Changes in livestock production on 2,847 Illinois accounting farms, 1940 (Johnston)—Mar. 1941, 489 (table)

See also **Cattle**, **Hogs**, **Horses**, and **Sheep**

Living standards

Comparison of living standards in different countries (Bartlett)—Jan. 1938, 146

Loans

Loans on sealed corn (Norton)—Nov.-Dec. 1937, 142

Effects of uniformity of corn loans, regardless of location (Norton)—Dec. 1940, 437 (table)

Machinery

Labor, horse and machinery expenses (Johnston)—Oct. 1935, 25 (table)

Costs of harvesting with combines (Ross and Hurt)—Sept.-Oct. 1936, 79 (tables)

Trends in use of power on accounting farms in Illinois (Johnston)—May 1938, 165 (tables)

Combine harvester costs for 1937 (Ross and Hurt)—May 1938, 167 (tables)

Harvesting costs reduced by use of mechanical corn pickers (Gehlbach)—Nov. 1938, 205 (table)

Recent trends in power and labor costs on Illinois farms (Wilcox)—Apr.-May 1939, 241 (table)

Cost of operating tractors in central Illinois, 1938 (Johnston)—Feb. 1940, 309 (tables)

Some effects of mechanization on amounts and costs of farm labor (Ross)—Oct. 1940, 417 (tables)

Marketing

Relation of seasonal milk production to costs of production and marketing (Caskey)—Apr. 1936, 54

Changes in retail distribution methods—Dec. 1936, 90 (table)

Distribution of milk through stores and depots (Bartlett)—May-June 1937, 116 (tables)

Soybean marketing outlook (Norton)—Sept.-Oct. 1937, 133

A survey of Illinois cooperative marketing and purchasing associations (Simerl and Norton)—July 1938, 183

Some recent changes in transportation of grain (Norton)—Apr.-May 1939, 239

Eastern corn belt farmers' cooperative shifts emphasis to meet changing conditions (Freemyer)—Oct. 1939, 273 (tables)

Illinois stockmen patronize central markets (Ashby)—Apr. 1940, 337 (table)

Water and truck transportation of Illinois grains (Norton)—June 1940, 357

Meat

Meat packing industry not decentralizing—May-June 1936, 59 (table)

Consumers and graded beef (Ashby and Hedlund)—Feb. 1940, 317

See also **Cattle, Hogs, Horses, Sheep, and Livestock**

Milk

High whole milk prices encourage canned milk consumption (Palmer)—July 1935, 7

Comparison of whole milk and butter prices in St. Louis milkshed—Jan. 1936, 39

Relation of seasonal milk production to costs of production and marketing (Caskey)—Apr. 1936, 54

Distribution of milk through stores and depots (Bartlett)—May-June 1937, 116 (tables)

High market milk prices reduce milk consumption (Bartlett)—Mar.-Apr. 1938, 161 (table)

Wholesale prices of market milk, condensed milk, and cheese as related to butter prices (Bartlett)—Oct. 1938, 201 (table)

Increasing milk consumption through use of quantity discounts (Bartlett)—Mar. 1940, 329 (table)

Cost of producing milk in Chicago and St. Louis milkshed (Wilcox)—June 1940, 363 (tables)

Maintaining stability in the market milk industry through the use of flexible prices (Bartlett)—July 1940, 369 (table)

Quantity discounts as a means of increasing milk consumption (Lee)—Aug. 1940, 384 (tables)

Increasing milk consumption by lowering distribution costs (Bartlett)—Nov. 1940, 421 (tables)

Quality requirements of milk in relation to consumption (Naden)—Jan. 1941, 458 (table)

See also **Dairy products**

Miscellaneous

American Institute of Cooperation—Apr. 1936, 49
Farm and Home Week—Nov.-Dec. 1937, 137

Oats

Cost of producing oats (Wilcox)—May 1940, 347 (table)
See also **Crop conditions**

Outlook

Agricultural outlook for 1936—Jan. 1936, 37
Agricultural outlook—May-June 1936, 60
Business outlook—Aug. 1936, 74
Hog outlook—Aug. 1936, 74
Sheep outlook—Aug. 1936, 75
Dairy outlook—Aug. 1936, 75
Poultry and egg outlook—Aug. 1936, 75
Agricultural outlook for 1937—Dec. 1936, 89
Soybean marketing outlook (Norton)—Sept.-Oct. 1937, 133
Wheat outlook (Simerl)—Aug. 1938, 191
Prospective plantings for 1939—Mar. 1939, 235 (table)
Factors in the present outlook (Norton)—Aug. 1939, 253
Outlook for feed grains and soybeans (Norton)—Oct. 1940, 412

Peaches

Illinois peach prospects—Feb. 1936, 43
See also **Horticultural products**

Pigs

See **Hogs**

Poultry

Poultry and egg outlook—Aug. 1936, 75
Recent seasonal and other short-time movements of poultry and egg prices (Jordan)—Dec. 1940, 448

Power

See **Horses and Machinery**

Prices

Corn

Corn prices in years of short crops (Working)—Sept.-Oct. 1936, 81 (table)
Seasonal types of corn price movements (Working)—Nov.-Dec. 1937, 137
Corn price situation (Working and Jordan)—Oct. 1939, 269
Premiums for white corn (Jordan)—Dec. 1939, 297 (table)

Dairy products

High whole milk prices encourage canned milk consumption (Palmer)—July 1935, 7 (table)
Comparison of whole milk and butter prices in St. Louis milkshed—Jan. 1936, 39
Premium for high-quality cream and butter (Brown)—May-June 1937, 115
High market milk prices reduce milk consumption (Bartlett)—Mar.-Apr. 1938, 161 (table)
Wholesale prices of market milk, condensed milk, and cheese, as related to butter prices (Bartlett)—Oct. 1938, 201 (table)
Consideration in governmental price control of dairy products (Bartlett)—Feb. 1939, 222
Maintaining stability in the market milk industry through the use of flexible prices (Bartlett)—July 1940, 369 (table)

Farm

Prices of Illinois farm products—*see* last page of each issue
Illinois farm prices—June 1935, 2
Business conditions and Illinois farm prices—July 1935, 5
Illinois farm prices—Aug. 1935, 15 (table)
Illinois farm prices—Sept. 1935, 17
Illinois farm prices—Nov. 1935, 30
General business conditions and Illinois farm prices—Jan. 1936, 37 (table)
Price movements of selected farm products in 1914 and 1939 (Jordan)—Sept. 1939, 261

General

Increases in factory payrolls greater than retail food prices (Caskey)—July 1935, 8

Prices—concluded

Increase in purchasing power of Illinois farmers—Sept. 1935, 17

Price inflation: Causes and prospects—Part I. Causes of inflation (Working)—Nov. 1939, 277

Price inflation: Causes and prospects—Part II. Prospects for inflation (Working)—Dec. 1939, 289

Course of the price level (Working)—Apr. 1940, 341

Is inflation imminent? (Working)—Oct. 1940, 409

Hogs

Prices of hogs and hog products as affected by removal of processing tax—Feb. 1936, 41

Recent hog price movements in the light of supply and demand conditions (Working)—Mar. 1940, 321 (table)

Soybeans

What about soybean prices this fall? (Jordan)—Oct. 1935, 22

Prospects for soybean prices (Working and Jordan)—Sept. 1939, 265

Effect of increased supplies upon soybean meal prices in 1940-41 (Jordan)—July 1940, 378

Price prospects for soybeans and soybean products as indicated by past relationships (Jordan)—Jan. 1941, 465

War

War-time prices (Working)—Sept. 1939, 257

Profits

See **Income**

Relief

Relationship between rural relief problems and agriculture in Illinois (Lindstrom)—Mar. 1941, 485

Rents

Needed: Flexible cash rent (Case)—Nov. 1939, 285

Ownership of rented land in east-central Illinois (Scofield)—May 1940, 349 (tables)

Roughage

Relative amounts of grain and roughage used by different classes of livestock (Mosher)—June 1940, 360 (table)

Effect of increased roughage production on farm income (Johnston)—Jan. 1941, 453 (tables)

See also **Crop conditions**

Sheep

Sheep outlook—Aug. 1936, 75

Cattle and sheep on feed—Jan. 1939, 217

Sheep cycle (Hughes)—Oct. 1940, 415

See also **Livestock**

Soil conservation

See **Federal programs**

Soybeans

What about soybean prices this fall? (Jordan)—Oct. 1935, 22

Have soybeans moved up? (Working)—Mar.-Apr. 1937, 104 (tables)

Soybean marketing outlook (Norton)—Sept.-Oct. 1937, 133

Soybean situation (Norton)—Nov. 1938, 208

Competitive position of soybean oil (Simerl)—June-July 1939, 245

Prospects for soybean prices (Working and Jordan)—Sept. 1939, 265

Competitive position of soybean meal (Simerl)—Nov. 1939, 286

Cost of producing soybeans (Wilcox)—Dec. 1939, 295

Effect of increased supplies upon soybean meal prices in 1940-41 (Jordan)—July 1940, 378

Outlook for feed grains and soybeans (Norton)—Oct. 1940, 412

Price prospects for soybeans and soybean products as indicated by past relationships (Jordan)—Jan. 1941, 465

See also **Crop conditions**

Taxes

Prices of hogs and hog products as affected by the removal of processing tax—Feb. 1936, 41

Tax foreclosure to eliminate tax delinquency (Walter)—June 1940, 365

Tenancy

- Land tenure in Illinois (Ackerman and Stewart)—Apr. 1936, 52 (table)
- Landlord-tenant problems in St. Louis milkshed (Case and Hannah)—June-July 1939, 247
- Tenancy not fully wedded to land values (Stewart)—June-July 1939, 250
- Ownership of rented land in east-central Illinois (Scofield)—May 1940, 349 (tables)
- Thousands of ex-tenants (Case)—Sept. 1940, 403
- Compensation to tenants for improvements and disturbance (Hannah)—Feb. 1941, 480

Transportation

- Some recent changes in transportation of grain (Norton)—Apr.-May 1939, 239
- Water and truck transportation of Illinois grain (Norton)—June 1940, 357

War

- War-time prices (Working)—Sept. 1939, 257
- This war and the farmer (Jordan)—Feb. 1940, 309
- Post-war losses to farmers greater than war-time gains—Nov. 1935, 30
- War and its effect on land prices (Stewart)—Feb. 1941, 475

Weather

- Effect of weather conditions—June 1935, 2
- Influence of weather on demand for certain horticultural products (Lloyd)—Aug. 1940, 394

Wheat

- Wheat prospects—June 1935, 3
- Wheat situation—Sept. 1935, 19 (table)
- Wheat situation (Ross)—May-June 1937, 111 (table)
- Wheat prospects for 1938 (Working)—June 1938, 174 (tables)
- Wheat outlook (Simerl)—Aug. 1939, 191
- See also **Crop conditions**

AUTHOR INDEX

Ackerman, Joseph

- Land tenure in Illinois (*with* Stewart)—Apr. 1936, 52
- Farm land rented in Illinois townships (*with* Stewart)—July-Aug. 1937, 125
- Credit used by Illinois farmers (*with* Norton)—Sept.-Oct. 1937, 134

Ashby, R. C.

- Illinois stockmen patronize central markets—Apr. 1940, 59
- Consumers and graded beef (*with* Hedlund)—Feb. 1940, 317

Bachman, K. L.

- Profits from feeding fall purchased steers (*with* Working)—Sept. 1938, 194

Bartlett, R. W.

- Proportion of national income received by farmers—July 1935, 9
- Changes in factory payrolls for specific Illinois markets—Oct. 1935, 21
- Business conditions—Sept.-Oct. 1936, 77
- Relation of international trade agreements to incomes of dairy producers—Jan.-Feb. 1937, 93
- Distribution of milk through stores and depots—May-June 1937, 116
- The general situation—Sept.-Oct. 1937, 129
- Comparison of living standards in different countries—Jan. 1938, 146
- High market milk prices reduce milk consumption—Mar.-Apr. 1938, 161
- Business situation—June 1938, 173
- Wholesale prices of market milk, condensed milk, and cheese, as related to butter prices—Oct. 1938, 201
- Considerations in governmental price control of dairy products—Feb. 1939, 222
- Prospects for exports of dairy products—Jan. 1940, 301
- Increasing milk consumption through use of quantity discount—Mar. 1940, 329
- Maintaining stability in the market milk industry through use of flexible prices—July 1940, 369
- Increasing milk consumption by lowering distribution costs—Nov. 1940, 421

Brown, A. J.

Premiums for high-quality cream and butter—May-June 1937, 115

Case, H. C. M.

More farms in Illinois—July 1935, 7

Total agricultural production will be changed by the new Soil Conservation program (*with* J. E. Wills)—Apr. 1936, 51

Father-son farm business relationships (*with* Hannah)—Mar. 1939, 231

Sources and uses of farmers' income (*with* Thompson)—Apr.-May 1939, 237

Landlord-tenant problems in the St. Louis milkshed (*with* Hannah)—June-July 1939, 247

Land values in relation to farm earnings—Nov. 1939, 281

Needed: Flexible cash rent—Nov. 1939, 285

Thousands of ex-tenants—Sept. 1940, 403

Caskey, Wayne

Increase in factory payrolls greater than retail food prices—July 1935, 8

Relation of seasonal milk production to costs of production and marketing—Apr. 1936, 54

Ekstrom, V. A.

Apple situation—Nov. 1938, 209

Factors affecting apple situation—Oct. 1939, 271

Freeman, Ruth Crawford

More money spent by farm families in 1935—Apr. 1936, 49

Freemyer, G. W.

Eastern corn belt farmers' cooperative shifts emphasis to meet changing conditions—Oct. 1939, 273

Gehlbach, M. P.

Harvesting costs reduced by use of mechanical corn pickers—Nov. 1938, 205

Hannah, H. W.

Father-son farm business relationships (*with* Case)—Mar. 1939, 231

Landlord-tenant problems in the St. Louis milkshed (*with* Case)—June-July 1939, 247

Compensation to tenants for improvements and disturbance—Feb. 1941, 480

An analysis of Illinois legislation relative to consolidation of political units—Mar. 1941, 495

Hedlund, E. C.

Consumers and graded beef (*with* Ashby)—Feb. 1940, 317

Houghton, A. V.

Some farm-land inheritance facts, Champaign county, Illinois, 1860-1939 (*with* Stewart)—Nov. 1940, 432

Hughes, E. M.

Beef cattle cycle—Apr. 1940, 333

Sheep cycle—Oct. 1940, 415

Hurt, B. R.

Costs of harvesting with combines (*with* Ross)—Sept.-Oct. 1936, 79

Combine harvester costs for 1937 (*with* Ross)—May 1938, 167

Johnston, P. E.

Labor, horse, and machinery expenses—Oct. 1935, 25

Farm earnings improved slightly in 1935—Apr. 1936, 50

Illinois farm incomes increased in 1936—May-June 1937, 109

Grain supplies and livestock on feed—Jan. 1938, 145

Trends in use of power on accounting farms in Illinois—May 1938, 165

Illinois farm earnings decline in 1937—June 1938, 176

Livestock situation—Aug. 1938, 189

How many hogs do we need?—Oct. 1938, 197

Farm accounts indicate increasing livestock production—Mar. 1939, 229

Recent trends in power and labor costs on Illinois farms (*with* Wilcox)—Apr.-May 1939, 241

Cost of operating tractors in central Illinois, 1938—Feb. 1940, 314

Illinois livestock production on increase—Mar. 1940, 328

Influence of A.A.A. programs on land use and farm incomes, Illinois accounting farms, 1938 and 1939—Sept. 1940, 398

Johnston, P. E.—concluded

- Effect of increased roughage production on farm income—Jan. 1941, 453
- Changes in livestock production on 2,847 Illinois accounting farms, 1940—Mar. 1941, 489

Jordan, G. L.

- What about soybean prices this fall?—Oct. 1935, 22
- Implications of recent money and credit developments—Feb. 1938, 152
- Price movements of selected farm products in 1914 and 1939—Sept. 1939, 261
- Prospects for soybean prices (*with Working*)—Sept. 1939, 265
- Corn price situation (*with Working*)—Oct. 1939, 269
- Premiums for white corn—Dec. 1939, 297
- This war and the farmer—Feb. 1940, 309
- Effect of increased supplies upon soybean meal prices in 1940-41—July 1940, 378
- Recent seasonal and other short-time movements of poultry and egg prices—Dec. 1940, 448
- Price prospects for soybeans and soybean products as indicated by past relationships—Jan. 1941, 465

Lee, G. A.

- Quantity discounts as a means of increasing milk consumption—Aug. 1940, 384

Lindstrom, D. E.

- Relationship between rural relief problems and agriculture in Illinois—Mar. 1941, 485

Lloyd, J. W.

- Influence of weather on demand for certain horticultural products—Aug. 1940, 394

Mosher, M. L.

- Intensive versus extensive farming as a means of increasing farm earnings—Feb. 1940, 311
- Relative amounts of grain and roughage used by different classes of livestock—June 1940, 360

Mutti, R. J.

- Continued upward trend in Illinois land values (*with Stewart*)—Nov. 1938, 207

Naden, K. D.

- Quality requirements of milk in relation to consumption—Jan. 1941, 458

Norton, L. J.

- Cash incomes and debt ratios of Illinois farmers in 1935 (*with Sayre*)—May-June 1937, 112
- Soybean marketing outlook—Sept.-Oct. 1937, 133
- Credit used by Illinois farmers (*with Ackerman*)—Sept.-Oct. 1937, 134
- Loans on sealed corn—Nov.-Dec. 1937, 142
- Corn exports—Feb. 1938, 151
- Argentine corn crops and exports of United States corn—Mar.-Apr. 1938, 160
- A survey of Illinois cooperative marketing and purchasing associations (*with Simerl*)—July 1938, 183
- An interpretation of the present corn situation—Oct. 1938, 199
- Soybean situation—Nov. 1938, 208
- Some features of the recent trade agreement with Canada and United Kingdom—Dec. 1938, 213
- Corn exports—Mar. 1939, 230
- Some recent changes in transportation of grain—Apr.-May 1939, 239
- Factors in the present outlook—Aug. 1939, 253
- Prospects for exports of grain and livestock products—Jan. 1940, 303
- Cost of handling grain by Illinois elevators—May 1940, 351
- Water and truck transportation of Illinois grain—June 1940, 357
- Mortgage debt and land use in Cumberland county (*with Smith*)—July 1940, 376
- Outlook for feed grains and soybeans—Oct. 1940, 412
- Effects of uniformity of corn loans, regardless of location—Dec. 1940, 437
- Planning investment and credit program for the family—Jan. 1941, 457
- Factors influencing land use in Vermilion county (*with Smith*)—Mar. 1941, 492

Palmer, Jesse T.

- High whole milk prices encourage canned milk consumption—July 1935, 7

Ross, R. C.

- Decline in value of agricultural exports continued—Oct. 1935, 27
- Costs of harvesting with combines (*with Hurt*)—Sept.-Oct. 1936, 79

Ross, R. C.—concluded

- Wheat situation—May-June 1937, 111
- Farm products—Sept.-Oct. 1937, 131
- Livestock on farms, January 1, 1938—Feb. 1938, 149
- Phases in agricultural situation—Mar.-Apr. 1938, 157
- Combine harvester costs for 1937 (*with* Hurt)—May 1938, 167
- Opportunities and problems of the small farm—May 1940, 345
- Some effects of mechanization on amounts and costs of farm labor—Oct. 1940, 417

Sauer, Elmer S.

- "Crooked farming" leads straight to profits—Jan. 1939, 218
- Farm account records and surveys indicate financial benefits of soil conservation practices—Aug. 1940, 387

Sayre, C. R.

- Cash incomes and debt ratios of Illinois farmers in 1935 (*with* Norton)—May-June 1937, 112

Schruben, L. W.

- Variations in farm organization associated with variations in proportions of tillable land in hay and pasture in northern Illinois, 1936—Dec. 1940, 439

Scofield, W. H.

- Ownership of rented land in east-central Illinois—May 1940, 349
- Tenants' problems point to need for lease improvement—Jan. 1941, 461

Searls, E. N.

- Standards for cold storage locker plants—Apr. 1940, 338
- Sources and uses of Illinois farmers' income, 1939—Sept. 1940, 397

Simerl, L. H.

- A survey of Illinois cooperative marketing and purchasing associations (*with* Norton)—July 1938, 183
- Wheat outlook—Aug. 1938, 191
- Competitive position of soybean oil—June-July 1939, 245
- Competitive position of soybean meal—Nov. 1939, 286

Smith, N. L.

- Mortgage debt and land use in Cumberland county (*with* Norton)—July 1940, 376
- Factors influencing land use in Vermilion county (*with* Norton)—Mar. 1941, 492

Stewart, C. L.

- Land tenure in Illinois (*with* Ackerman)—Apr. 1936, 52
- Shifting real estate values in Illinois (*with* W. J. Wills)—Sept.-Oct. 1936, 80
- Yield dependability in rating Illinois farm land (*with* W. J. Wills)—Jan.-Feb. 1937, 97
- Farm land rented in Illinois townships (*with* Ackerman)—July-Aug. 1937, 125
- Continued upward trend in Illinois land values (*with* Mutti)—Nov. 1938, 207
- Tenancy not fully wedded to land values—June-July 1939, 250
- Illinois land ratings as an aid in land assessments—Jan. 1940, 306
- Some farm-land inheritance facts, Champaign county, Illinois, 1860-1939 (*with* Houghton)—Nov. 1940, 432
- War and its effect on land prices—Feb. 1941, 475

Thompson, N. O.

- Sources and uses of farmers' income (*with* Case)—Apr.-May 1939, 237

Walter, G. H.

- Tax foreclosure to eliminate tax delinquency—June 1940, 365

Warren, F. G.

- A new index of industrial production per capita (*with* Working)—Dec. 1938, 215
- Revised index of industrial production—Nov. 1940, 434

Wilcox, R. H.

- Recent trends in power and labor costs on Illinois farms (*with* Johnston)—Apr.-May 1939, 241
- Cost of producing soybeans—Dec. 1939, 295
- Cost of producing corn—Jan. 1940, 304
- Cost of producing hogs—Mar. 1940, 326
- Cost of producing oats—May 1940, 347
- Cost of producing milk in the Chicago and St. Louis milksheds—June 1940, 363

Wilcox, R. H.—concluded

Crop costs in Illinois in 1939—Sept. 1940, 405
Relative profitableness of crops—Dec. 1940, 446

Wills, J. E.

Total agricultural production will be changed by new Soil Conservation program (*with Case*)—Apr. 1936, 51

Wills, W. J.

Shifting real estate values in Illinois (*with Stewart*)—Sept.-Oct. 1936, 80
Yield dependability in rating Illinois farm land (*with Stewart*)—Jan.-Feb. 1937, 97

Working, E. J.

Corn prices in years of short crops—Sept.-Oct. 1936, 81
Have soybeans moved up?—Mar.-Apr. 1937, 104
Seasonal types of corn price movements—Nov.-Dec. 1937, 137
Prospects for farm income—May 1938, 168
Wheat prospects for 1938—June 1938, 174
1938 corn acreage allotments—June 1938, 178
Profits from feeding fall purchased steers (*with Bachman*)—Sept. 1938, 193
A new index of industrial production per capita (*with Warren*)—Dec. 1938, 215
War-time prices—Sept. 1939, 257
Prospects for soybean prices (*with Jordan*)—Sept. 1939, 265
Corn price situation (*with Jordan*)—Oct. 1939, 269
Price inflation: Causes and prospects, Part I.—Causes of inflation—Nov. 1939, 277
Price inflation: Causes and prospects, Part II.—Prospects for inflation—Dec. 1939, 289
Recent hog price movements in the light of supply and demand conditions—Mar. 1940, 321
Course of the price level—Apr. 1940, 341
Changes in corn and hog production in the South—May 1940, 352
Prospects for cattle feeding in the light of an index of cattle feeding profits—Aug. 1940, 381
Is inflation imminent?—Oct. 1940, 409
Recent developments in farm income—Nov. 1940, 428
Hog production and market prospects—Feb. 1941, 469

Unsigned articles

Business conditions—June 1935, 1
Effect of weather conditions—June 1935, 2
Illinois farm prices—June 1935, 2
Wheat prospects—June 1935, 3
Hog situation—June 1935, 3
Dairy situation—June 1935, 3
Illinois conditions—July 1935, 5
Business conditions and Illinois farm prices—July 1935, 5
June 1 pig crop report—July 1935, 6
Cold storage holdings—July 1935, 6
Unemployment and factory payrolls—Aug. 1935, 13
National debt—Aug. 1935, 14
Illinois farm prices—Aug. 1935, 14
Crop conditions in Illinois—Aug. 1935, 15
Illinois farm prices—Sept. 1935, 17
Increase in purchasing power of Illinois farmers—Sept. 1935, 17
General business conditions—Sept. 1935, 18
Wheat situation—Sept. 1935, 19
Condition of corn crop—Sept. 1935, 19
Cattle on feed—Sept. 1935, 19
Illinois conditions—Oct. 1935, 21
General business conditions—Oct. 1935, 21
General business conditions—Nov. 1935, 29
Illinois farm prices—Nov. 1935, 30
Food supply for 1935-36—Nov. 1935, 30
Post-war losses to farmers greater than war-time gains—Nov. 1935, 30
Trade agreements between United States and Canada—Dec. 1935, 33
General business conditions and Illinois farm prices—Jan. 1936, 37
Agricultural outlook for 1936—Jan. 1936, 37
Comparison of whole milk and butter prices in the St. Louis milkshed—Jan. 1936, 39
Balancing supplies of feed grains and livestock numbers in 1936—Feb. 1936, 41

Unsigned articles—concluded

- Prices of hogs and hog products as affected by the removal of the processing tax—Feb. 1936, 41
 - Illinois peach prospects—Feb. 1936, 43
 - Numbers of livestock on farms—Mar. 1936, 46
 - American Institute of Cooperation—Apr. 1936, 49
 - Farmer's share of the consumer's dollar—May-June 1936, 57
 - First results of the trade agreement between the United States and Canada—May-June 1936, 59
 - Meat packing industry not decentralizing—May-June 1936, 59
 - Agricultural outlook—May-June 1936, 60
 - Crop conditions—July 1936, 69
 - Livestock conditions—July 1936, 70
 - June pig crop report—July 1936, 71
 - Business outlook—Aug. 1936, 73
 - Feed supplies—Aug. 1936, 73
 - Beef cattle prospects—Aug. 1936, 74
 - Cattle importations—Aug. 1936, 74
 - Hog outlook—Aug. 1936, 74
 - Sheep outlook—Aug. 1936, 75
 - Dairy outlook—Aug. 1936, 75
 - Poultry and egg outlook—Aug. 1936, 75
 - General business conditions—Nov. 1936, 85
 - Agricultural outlook for 1937—Dec. 1936, 89
 - Changes in retail distribution methods—Dec. 1936, 90
 - Domestic business conditions—Jan.-Feb. 1937, 93
 - Business conditions—Mar.-Apr. 1937, 101
 - Indicated acreages for 1937—Mar.-Apr. 1937, 101
 - Cash farm incomes increasing—May-June 1937, 119
 - General business conditions—July-Aug. 1937, 122
 - Agricultural conditions—July-Aug. 1937, 122
 - Farm and home week—Nov.-Dec. 1937, 137
 - Crop prospects—July 1938, 181
 - Measures of agricultural and business conditions—July 1938, 185
 - Cattle and sheep on feed—Jan. 1939, 217
 - Cash farm income, 1938—Jan. 1939, 217
 - Grain stocks on farms—Jan. 1939, 218
 - Livestock on farms—Feb. 1939, 221
 - Hog situation—Feb. 1939, 222
 - Prospective plantings for 1939—Mar. 1939, 235
-

TABLE INDEX

AAA program

See Federal programs

Acreages

Barley

- Illinois, average 1931-32, 1934, and 1935—Aug. 1935, 15
- Illinois and United States—Mar.-Apr. 1937, 102
- Planted, United States and Illinois, 1935, 1936, 1937, and 1938—Mar.-Apr. 1938, 158
- Indicated for 1939 compared with 1938 and average 1929-1938—Mar. 1939, 235

Corn

- Illinois, 1921-1932, 1934, and 1935—Aug. 1935, 15
- United States—May-June 1936, 63
- Illinois—May-June 1936, 63
- Illinois and United States—Mar.-Apr. 1937, 102
- Planted, United States and Illinois, 1935, 1936, 1937, and 1938—Mar.-Apr. 1938, 158
- Prospective, 1938—June 1938, 178
- Selected corn-belt states—June 1938, 179
- Indicated, 1939 compared with 1938 and average, 1929-1938—Mar. 1939, 235
- Oklahoma and Texas, 1928-1939—May 1940, 353

Acreages—concluded

Planted, seven southern states, 1928-1939—May 1940, 354
Illinois and United States, 1931-1939—Jan. 1941, 453

Cotton

Oklahoma and Texas, 1928-1939—May 1940, 353
Planted, seven southern states, 1928-1939—May 1940, 353

Cowpeas

Illinois and United States—Mar.-Apr. 1937, 102
Planted, United States and Illinois, 1935, 1936, 1937, and 1938—Mar.-Apr. 1938, 158
Indicated, 1939 compared with 1938 and average 1929-1938—Mar. 1939, 235
Oklahoma and Texas, 1928-1939—May 1940, 353
Harvested, seven southern states, 1928, 1939—May 1940, 354

Flax

United States, planted, 1935, 1936, 1937, 1938—Mar.-Apr. 1938, 158
Indicated, 1939 compared with 1938 and average, 1929-1938—Mar. 1939, 235

Grain

Used by different classes of livestock—June 1940, 362

Grain sorghums

Indicated, 1939 compared with 1938 and average 1929-1938—Mar. 1939, 235

Hay

Illinois, average 1921-1932, 1934, and 1935—Aug. 1935, 15
Indicated, tame hay, 1939, compared with 1938 and average, 1929-1938—Mar. 1939, 235

Oats

Illinois, average 1921-1932, 1934, and 1935—Aug. 1935, 15
United States—May-June 1936, 63
Illinois—May-June 1936, 63
Illinois and United States—Mar.-Apr. 1937, 102
Indicated, 1939 compared with 1938 and average, 1929-1938—Mar. 1939, 235

Peanuts

Oklahoma and Texas, 1928-1939—May 1940, 353
Harvested, seven southern states, 1928-1939—May 1940, 354

Potatoes

Illinois and United States—Mar.-Apr. 1937, 102
Indicated, 1939 compared with 1938 and average 1929-1938—Mar. 1939, 235

Principal crops

Harvested, Oklahoma and Texas, 1928-1939—May 1940, 353
Harvested, seven southern states, 1928-1939—May 1940, 354

Roughages

Used by various classes of livestock—June 1940, 362

Soybeans

Illinois, average 1921-1932, 1934, and 1935—Aug. 1935, 15
United States—May-June 1936, 63
Illinois—May-June 1936, 63
Illinois and United States—Mar.-Apr. 1937, 102
Indicated, 1939 compared with 1938 and average 1929-1938—Mar. 1939, 235
Oklahoma and Texas, 1928-1939—May 1940, 353
Harvested, seven southern states, 1928-1939—May 1940, 354

Wheat

Illinois, average 1921-1932, 1934, and 1935—Aug. 1935, 15
Harvested, 1924-1935—Sept. 1935, 18
United States—May-June 1936, 63
Illinois—May-June 1936, 63
Spring wheat, Illinois and United States—Mar.-Apr. 1937, 102
Indicated, spring wheat, compared with 1938 and average 1929-1938—Mar. 1939, 235
Winter wheat, Oklahoma and Texas, 1928-1939—May 1940, 353

Apples

See Cold storage, Crop production, Exports, Imports, Prices, Tariff rates

Barley

See Acreages, Imports, Crop production, Tariff rates

Beef

See Cold storage

Business conditions

See back page of each issue for indexes of business conditions

Bran

See Imports, Tariff rates

Butter

See Cold storage, Prices

Canada

See Exports, Imports, Tariff rates

Capital

Available to foreign countries from the United States, 1914 to 1921—Jan. 1940, 302

Carryover

Wheat, United States and world, July 1, 1924-1935—Sept. 1935, 18

Corn on farms, Oct. 1, 1940, selected states, average 1928-1938 and 1938-39—Dec. 1940, 438

Cattle

See Imports, Livestock numbers, Marketing, Roughages, Tariff rates

Cheese

See Cold storage

Chickens

See Imports, Tariff rates

Cold storage

Holdings

Apples, beef, dairy products (butter and cheese), eggs (frozen and shell), fruits (frozen), lard, pork, poultry (frozen), and vegetables (frozen), April 1, 1933-1937, 1937, and 1938—Mar.-Apr. 1938, 160

Locker plants

Capacity and investment of 4 cold-storage locker plants in northwestern Illinois—Apr. 1940, 339

Operating expenses, average of 4 locker plants, northwestern Illinois, first 343.5 plant days—Apr. 1, 1940, 340

Combines

See Acreages, Machinery

Consumption

Cottonseed oil

United States, 1929-1936—Mar.-Apr. 1937, 107

Milk

Apparent consumption of canned milk, United States, 1927-1934—July 1935, 8

Daily, per capita, in 14 cities having more than 500,000 population, May 1934—May-June 1937, 116

Changes in estimated daily per capita, New York metropolitan area, 1910-1932—May-June 1937, 117

Utilization, United States—Oct. 1938, 201

Effect upon per capita consumption caused by quantity discounts, 1933-1938—Aug. 1940, 385

Quantity discounts, effect upon per capita consumption for groups of patrons in various income levels, 1933-1938—Aug. 1940, 386

Fats and oils

Apparent, United States, 1929-1936—Mar.-Apr. 1937, 107

United States by classes of products, 1938—June-July, 1939, 246

Lard

United States, 1929-1936—Mar.-Apr. 1937, 107

United States, 1924-1929, 1934-1937, and 1937—Oct. 1938, 197

Linseed oil

United States, 1929-1936—Mar.-Apr. 1937, 107

Consumption—concluded

Pork

United States, 1924-1929, 1934-1937, and 1937—Oct. 1938, 197

Soybean oil

United States, 1929-1936—Mar.-Apr. 1937, 107

Cooperative marketing

See Marketing

Corn

See Acreages, Carryover, Expenses, Imports, Machinery, Prices, Crop production, Stocks, Tariff rates, Yields

Cotton

See Acreages

Cottonseed oil

See Consumption, Crop production

Cowpeas

See Acreages

Cows

See Cattle

Cream

See Imports, Tariff rates

Credit

Borrowed funds, purposes for—Sept.-Oct. 1937, 134

Crop production

Apples

Indicated, Illinois, 1936—July 1936, 69

United States and Illinois, 1928-1932, and 1937—July-Aug. 1937, 123

United States and Illinois, 1937—Sept.-Oct. 1937, 132

United States and Illinois, 1927-1936, 1937, indicated 1938—July 1938, 182

By regions and selected states, average 1927-1936, 1931, and 1938—Nov. 1938, 210

Commercial, by regions and in Illinois, average 1928-1937, 1937, 1938, indicated 1939—Oct. 1939, 272

United States, 1932-1939 and indicated 1939—Oct. 1939, 272

United States, 1932-1939—Oct. 1939, 273

Barley

Illinois, average 1921-1932, 1934, and 1935—Aug. 1935, 15

United States and Illinois, 1928-1932, 1937—July-Aug. 1937, 123

United States and Illinois, 1927-1936, 1937, and indicated 1938—July 1938, 182

Corn

Illinois, average 1921-1932, 1934, and 1935—Aug. 1935, 15

Indicated, Illinois, 1936—July 1936, 69

United States and Illinois, 1928-1932, and 1937—July-Aug. 1937, 123

United States and Illinois, 1937—Sept.-Oct. 1937, 132

United States and Illinois, 1927-1936, 1937, and indicated 1938—July 1938, 182

Illinois, yellow, white, and mixed as percent of total production—Dec. 1939, 298

Cost, Champaign and Piatt counties, 1920-1924 and 1934-1938—Jan. 1940, 305

Seven cotton states and Oklahoma and Texas, 1928-1939—May 1940, 354

Cost, Champaign and Piatt counties, 1939—Sept. 1940, 407

Seven cotton states and Oklahoma and Texas, 1928-1939—May 1940, 354

Cost, Champaign and Piatt counties, 1939—Sept. 1940, 407

Selected states, average 1928-1938 and 1938-39—Dec. 1940, 438

Cottonseed oil

United States, 1929-1936—Mar.-Apr. 1937, 107

Fats and oils

United States, 1929-1936—Mar.-Apr. 1937, 107

Apparent consumption, United States, 1929-1936—Mar.-Apr. 1937, 107

Grain sorghums

United States and Illinois, 1928-1932—July-Aug. 1937, 123

Crop production—concluded

Grapefruit

United States, 1932-1938—June-July 1939, 272

Hay

Illinois, average 1921-1932, 1934, and 1935—Aug. 1935, 15

Indicated, Illinois, 1936—July 1936, 69

United States and Illinois, 1928-1932—July-Aug. 1937, 123

Alfalfa, United States and Illinois, 1927-1936, 1937, and indicated 1938—July 1938, 182

All tame, United States and Illinois, 1927-1936, 1937, and indicated 1938—July 1938, 182

Clover, United States and Illinois, 1927-1936, 1937, and indicated 1938—July 1938, 182

Alfalfa, cost, Champaign and Piatt counties, 1939—Sept. 1940, 407

Clover, cost, Champaign and Piatt counties, 1939—Sept. 1940, 407

Soybean, cost, Champaign and Piatt counties, 1939—Sept. 1940, 407

Linseed oil

United States, 1929-1936—Mar.-Apr. 1937, 107

Oats

Illinois, average 1921-1932, 1934, and 1935—Aug. 1935, 15

Indicated, Illinois, 1936—July 1936, 69

United States and Illinois, 1928-1932, and 1937—July-Aug. 1937, 123

United States and Illinois, 1927-1936, 1937, and indicated 1938—July 1938, 182

Costs, Champaign and Piatt counties, 1920-1924 and 1934-1938—May 1940, 347

Cost, Champaign and Piatt counties, 1939—Sept. 1940, 407

Oranges

United States, 1932-1938—Oct. 1939, 272

Peaches

Indicated, Illinois, 1936—July 1936, 69

United States and Illinois, 1928-1932—July-Aug. 1937, 123

United States and Illinois, 1927-1936, 1937, and indicated 1938—July 1938, 182

Pears

Indicated Illinois, 1936—July 1936, 69

United States and Illinois, 1928-1932, and 1937—July-Aug. 1937, 123

United States and Illinois, 1927-1936, 1937, and indicated 1938—July 1938, 182

United States, 1932-1938, and indicated 1939—Oct. 1939, 272

Potatoes

United States and Illinois, 1928-1932, and 1937—July-Aug. 1937, 123

United States and Illinois, 1927-1936, 1937, and indicated 1938—July 1938, 182

Soybeans

Illinois, average 1921-1932, 1934, and 1935—Aug. 1935, 15

Illinois, indicated, 1936—July 1936, 69

United States and Illinois, 1937—Sept.-Oct. 1937, 132

Costs, Champaign and Piatt counties, 1922-1926 and 1934-1938—Dec. 1939, 296

Costs, Champaign and Piatt counties, 1939—Sept. 1940, 407

Soybean oil

United States, 1929-1936—Mar.-Apr. 1937, 107

Sweet potatoes

United States and Illinois, 1928-1932, and 1937—July-Aug. 1937, 123

Wheat

Illinois, as reported by the U.S.D.A.—Aug. 1935, 15

United States, 1924-1935—Sept. 1935, 38

Illinois, indicated, 1936—July 1936, 69

United States and Illinois, 1928-1932, and 1937—July-Aug. 1937, 123

United States and Illinois, 1937—Sept.-Oct. 1937, 132

United States, 1927-1936, 1937, and indicated 1938—July 1938, 182

Crop prospects

1936 compared with production in 1935 and 1928-1932—Aug. 1936, 74

Debts

Owner-operators keeping farm accounts, Illinois, 1935—May-June 1937, 112

Tenant-operators keeping farm accounts, Illinois, 1935—May-June 1937, 113

Per acre debt of Cumberland county farms as related to land use—July 1940, 375

Eggs

See Cold storage, Imports, Tariff rates

Expenses

Crop costs

- Corn husking, pull-type and mounted pickers, Illinois 1937—Nov. 1938, 206
- Harvesting, acre and bushel, machine and hand methods, Illinois, 1937—Nov. 1938, 206
- Soybeans, production, Champaign and Piatt counties, 1922-1926 and 1934-1938—Dec. 1939, 296
- Corn, production, Champaign and Piatt counties, 1920-1924 and 1934-1938—Jan. 1940, 305
- Oats, production, Champaign and Piatt counties, 1920-1924, and 1934-1938—May 1940, 347
- Grain, handling by elevators—May 1940, 351
- Grain, handling cost as related to volume, 43 Illinois companies, 1937-38—May 1940, 352
- Production, 1939, Champaign and Piatt counties—Sept. 1940, 407

Dairy products

- Distribution costs, milk depots, Danville, Illinois, January, 1937—May-June 1937, 118
- Distribution costs, store and depot, Boston and Danville—May-June 1937, 119
- Milk production costs and returns—Jan. 1940, 364
- Costs in relation to milk production per cow—June 1940, 364
- Milk distribution costs, wholesale and home-delivery, California, 1937—Nov. 1940, 423
- Milk distribution, wholesale, glass and paper bottles, New York City—Nov. 1940, 423
- Milk distribution costs, paper containers in two California areas, 1939—Nov. 1940, 425
- Milk distribution, wholesale routes, glass bottles, Boston, paper bottles, New York—Nov. 1940, 428

Farms

- Comparison of expenses for labor, horses, and machinery per crop acre on farms of different sizes and operated with different types of power, central Illinois accounting farms, 1930-1934—Oct. 1935, 26
- Comparison of, accounting farms from selected areas in Illinois, 1934 and 1935—Apr. 1936, 50
- Variation, accounting farms in Illinois, by farming-type areas, 1936—May-June 1937, 110
- Soil Conservation Service cooperating and non-cooperating farms, 1935 and 1937—Jan. 1939, 219
- Normal, based on farm records in central Illinois for 1937—Mar. 1939, 233

Labor

- Man labor, horse, and machinery cost per crop acre, Illinois accounting farms, 1930-1936—May 1938, 166
- Costs of use of labor, horses, and tractors, 1923-1937—Apr.-May 1939, 243
- Labor, distribution by kinds in various farming-type areas in Illinois—Oct. 1940, 417

Livestock

- Hogs, cost of producing, per cwt., Champaign and Piatt counties, 1920-1924, 1934-1938—Mar. 1940, 328
- Locker plant operating expenses, average 4 lockers, northwestern Illinois—Apr. 1940, 340

Machinery

- Tractor costs per hour for variation in number of hours used, central Illinois, 1938—Feb. 1940, 316
- Tractors, horsepower ratings from 12.2 to 18.9 on heavy and light soils, central Illinois, 1938—Feb. 1940, 316
- Tractors, operating costs, rubber and steel wheels, central Illinois, 1938—Feb. 1940, 317
- See also* Labor

Exports

- Wheat from United States, 1924-1935—Sept. 1935, 18
- Proportion of value represented by selected commodity groups—Oct. 1935, 27

Exports—concluded

- United States to Canada, agricultural products under reduced duties—May-June 1936, 59
- Industrial losses, effect upon dairymen's income—Jan.-Feb. 1937, 96
- Wheat from United States, 1923-1935—May-June 1937, 111
- Lard, United States, 1924-1929, 1934-1937, and 1937—Oct. 1938, 197
- Pork, United States, 1924-1929, 1934-1937, and 1937—Oct. 1938, 198
- Canada to United States—Dec. 1938, 214
- United States to Canada—Dec. 1938, 214
- Apples, United States, 1932-1939—Oct. 1939, 273
- Dairy products, United States, 1914-1919 and 1937-38—Jan. 1940, 301

Farm products

See back page of each issue for prices and price indexes of Illinois farm products

Fats and oils

See Consumption, Cottonseed oil, Lard, Linseed oil, Crop production

Federal programs

AAA program

- Analysis of Illinois account records grouped according to participation in AAA programs, 1938 and 1939—Sept. 1940, 400
- Analysis by farming-type areas, average for 1938 and 1939—Sept. 1940, 401

Soil conservation program

- Crop yields, trend, Soil Conservation Service cooperating and non-cooperating farms, 1935 and 1937—Jan. 1939, 219
- Income, gross and net, cooperating and non-cooperating farms, 1935-1937—Jan. 1939, 219
- Land use, trends, cooperating and non-cooperating farms, 1935-1937—Jan. 1939, 219
- Soil ratings, crop yields, and soil-building legumes, LeRoy Soil Conservation Service area, 1939—Aug. 1940, 389
- Tenure related to land use, crop yields, and amount of livestock, LeRoy Soil Conservation Service area, 1939—Aug. 1940, 390
- Crop yields, contour cultivation compared with usual field system, LeRoy Soil Conservation Service area, 1939—Aug. 1940, 391
- Soil ratings, land use, and crop yields, Edwardsville area, 1939—Aug. 1940, 392
- Roughages, use of, as related to livestock returns and farm incomes, Edwardsville area, 1939—Aug. 1940, 393
- Roughages, use of, related to dairy costs, Edwardsville Soil Conservation Service area, 1939—Aug. 1940, 393

Feed

- Amounts used in producing milk—June 1940, 365
- Value per 100 acres as related to percent of tillable land in hay and pasture, 1936—Dec. 1940, 442
- Land use, variations in, effect on feed production—Jan. 1941, 455

Flax

See Acreages

Fruits

See Apples, Cold storage, Grapefruit, Oranges, Peaches, Pears

Grapefruit

See Crop production

Grain stocks

Grain

- On farms, United States, April 1—May-June 1936, 64
- Commercial stocks report, United States, April 11, 1936—May-June 1936, 64
- On hand July 1—July 1936, 70
- On farms, Illinois and United States, April 1, 1937—Mar.-Apr. 1937, 102
- On farms July 1, 1938—July 1938, 182
- On farms January 1, 1939—Illinois and United States—Jan. 1939, 218

Oats

- On farms, October 1, 1937—Sept.-Oct. 1937, 132

Wheat

- On farms, October 1, 1937—Sept.-Oct. 1937, 132

Government payments

Receipts from January to April, 1937, Illinois—May-June 1937, 119
Receipts from January to April, 1937, United States—May-June 1937, 119
See also **Income**

Grain sorghums

See **Acreages, Crop production**

Hay

See **Acreage, Expenses, Production**

Hogs

See **Expenses, Imports, Livestock production, Roughages, Sales, Tariff duties**

Horses

Use of, 1923-1937—Apr.-May 1939, 243
See also **Expenses, Livestock numbers**

Imports

Wheat into United States—Sept. 1935, 18
Agricultural products, Canada from United States, value—Dec. 1938, 214
Agricultural products, United States from Canada, value—Dec. 1938, 214

Income

Changes in farm cash income and factory payrolls in United States, 1929-1935—Jan. 1936, 38
Comparison of on accounting farms from selected areas in Illinois, 1934 and 1935—Apr. 1935, 50
Dairymen's, decline as a result of lower butter prices—Jan.-Feb. 1937, 96
Accounting farms, Illinois, 1934, 1935, and 1936—May-June 1937, 110
Variation, accounting farms in Illinois by farming-type areas, 1936—May-June 1937, 110
Owner-operators keeping farm accounts, Illinois 1935—May-June 1937, 112
Tenant-operators keeping farm accounts, Illinois, 1935—May-June 1937, 113
Receipts from sale of principal farm products, January to April, 1937, Illinois—May-June 1937, 119
Receipts from sale of principal farm products, January to April, 1937, United States—May-June 1937, 119
Per acre, Illinois accounting farms, 1925-1929, 1930-1934, 1935, 1936, and 1937—June 1938, 177
Farm, United States and Illinois, 1937 and 1938—Jan. 1939, 217
Soil Conservation Service cooperating farms and non-cooperating farms, gross and net, 1935 and 1937—Jan. 1939, 219
Sources of net cash receipts—Apr.-May 1939, 237
Non-cash from the farm—Apr.-May 1939, 237
Earnings on farms differing in intensity of business and in size—Feb. 1940, 313
Earnings as related to number of above-average efficiency factors—Feb. 1940, 314
Receipts, net cash, source—Sept. 1940, 397
Income, cash, use—Sept. 1940, 398
Income, non-cash, from farm—Sept. 1940, 398
Payments, benefit, received by accounting farmers in Illinois, by areas, 1936-1939—Sept. 1940, 399
Sources, and differences of labor requirements—Oct. 1940, 418
Sources, as related to percent of tillable land in hay and pasture, 1936—Dec. 1940, 444
Profit per acre of important field crops grown in Champaign and Piatt counties, 1935-1939—Dec. 1940, 447
Land use, variations, effect on—Jan. 1941, 455
Source, farms in various groups—Jan. 1941, 456
See also **Government payments**

Industrial production

Indexes, 1937 and 1938—June 1938, 175

Labor

Requirements, differences with various sources of income—Oct. 1940, 418
Requirements in relation to size of farm—Oct. 1940, 418

Lambs

See **Roughages**

Land

- Rented, distribution of township percentages, by farming-type areas, Illinois 1935—July-Aug. 1937, 127
- Use, trends, Soil Conservation Service cooperating and non-cooperating farms, 1935-1937—Jan. 1939, 219
- Value, earned, based on net cash earnings per acre by farming-type areas, Illinois, 1926-1938—Nov. 1939, 284
- Size of farms and effect on relative earnings—Feb. 1940, 313
- Size of farm as related to number of above-average efficiency factors—Feb. 1940, 314
- Percent of rented land owned by various types of owners, 3 cash grain counties, Illinois, 1938—May 1940, 350
- Percent distribution of rented land owned by private individuals classified as to place of residence, 3 cash grain counties, Illinois, 1938—May 1940, 350
- Land use in Cumberland county, Illinois, 1935, as related to debt per acre—July 1940, 376
- Use, as related to percent of tillable land in hay and pasture, 1936—Dec. 1940, 440
- Grain land in grain crops and hay and pasture land in roughage crops associated with tillable land in hay and pasture—Dec. 1940, 440
- Tillable land in hay and pasture as related to average investment per farm, 1936—Dec. 1940, 444
- Tillable land in hay and pasture as related to income by sources, 1936—Dec. 1940, 444
- Tillable land in corn, hay, and pasture, 1931-1939—Jan. 1941, 453
- Use, variations in, effect on farm income and feed production, Central Illinois, averages for 1931, 1936, and 1937—Jan. 1941, 455

Lard

- See Cold storage, Consumption, Exports, Livestock production and livestock products*

Linseed oil

- See Consumption, Crop production*

Livestock numbers

Cattle

- On farms, January 1, 1924-1941—Jan. 1941, 455

Horses

- Number per farm, Illinois accounting farms, 1926, 1932, and 1938—May 1938, 165

Livestock

- Estimated numbers on United States farms, January 1, 1925-1936—Mar. 1936, 45
- United States, January 1, 1938—Feb. 1938, 150
- On farms, Illinois, January 1, 1936, 1937, 1938—Feb. 1938, 150
- On farms, United States and Illinois, January 1, 1927-1936 average, 1935 to 1939—Feb. 1939, 221
- On farms, United States, January 1, 1930-1939, 1939, 1940, 1941—Mar. 1941, 491

Mules

- Number per farm, Illinois accounting farms, 1926, 1932, and 1938—May 1938, 365

Livestock production and livestock products

Dairy products

- Milk, per cow, relation to costs and profits—June 1940, 364
- Milk, related to amounts of feed and man labor used—June 1940, 365

Hogs

- Pig crops, by regions, average 1929-1933 and annual, 1935 and 1939—Mar. 1940, 322
- Cost, per cwt. Champaign and Piatt counties, 1920-1924 and 1934-1938—Mar. 1940, 328
- Pig crops, seven cotton states and Oklahoma and Texas, 1928-1939—May 1940, 354
- Pig crops, 1924-1941—Jan. 1941, 454

Lard

- United States, 1929-1936—Mar.-Apr. 1937, 107
- United States, 1924-1929, 1934-1937, and 1937—Oct. 1938, 197

Pork

- United States, 1924-1929, 1934-1937, and 1937—Oct. 1938, 197

Livestock value

- Livestock on farms, United States, January 1, 1938—Feb. 1938, 150
- Livestock on farms, Illinois, January 1, 1936, 1937, and 1938—Feb. 1938, 150

Machinery

Combines

Harvesting costs, 1935—Sept.-Oct. 1936, 79
Acreages harvested, 1935—Sept.-Oct. 1936, 79
Average operating costs, 1935—Sept.-Oct. 1936, 80
Acreages harvested, 1937—May 1938, 167
Harvesting costs, 1937—May 1938, 167
Average operating costs, Illinois—May 1938, 168

Corn-pickers

Corn husked, two-row mechanical pickers, Illinois, 1937—Nov. 1938, 206
Rate of husking, two-row mechanical pickers, Illinois, 1937—Nov. 1938, 206
See also Expenses

Expenses

Comparison of expenses for labor, horses, and machinery per crop acre on farms of different sizes and operated with different types of power, central Illinois accounting farms, 1930-1934—Oct. 1935, 26

Tractors

Cost records, 1923-1937—Apr.-May 1939, 243
Fuel used, by soil types—Feb. 1940, 315
Cost per hour for variations in number of hours used, Central Illinois, 1938—Feb. 1940, 316
Costs, horsepower ratings from 12.2 to 18.9 heavy and light soils, Central Illinois, 1938—Feb. 1940, 316
Operating costs, rubber and steel wheels, Central Illinois, 1938—Feb. 1940, 317

Marketing

Cattle

Beef, percentage to market each month—May-June 1936, 66

Cooperative

Estimated membership and business of associations, United States, and Illinois, marketing season, 1934-35—May-June 1936, 58
Statistical summary of cooperative association survey, Illinois, 1936—July 1938, 182
Eastern corn-belt farmers' cooperative, volume of products handled and source of net profits—Oct. 1939, 274

Milk

See Consumption, Expenses, Livestock production, Sales

Mules

See Livestock numbers

Oats

See Acreages, Imports, Prices, Crop production, Stocks, Tariff rates, Yields

Oranges

See Crop production

Payrolls

Factory, changes in, compared with changes in butter prices—Jan.-Feb. 1937, 95
Received for production of industrial exports, 1925-1929 compared with 1930-1935—Jan.-Feb. 1937, 95

Peaches

See Crop production

Peanuts

See Acreages

Pears

See Crop production

Pigs

See Hogs

Pork

See Cold storage, Consumption, Exports, Imports, Livestock production, Tariff rates

Potatoes

See Acreages, Crop production

Poultry

See **Chickens, Cold storage, Eggs**

Power

Types, percentages on Illinois accounting farms, 1930-1936—May 1938, 166

See also **Expenses, Horses, Machinery**

Prices

Illinois farm products—*see* back page of each issue

Milk, average retail, whole and evaporated milk, price spreads, and apparent consumption of canned milk, United States, 1927-1934—July 1935, 8

Wheat, average, all parcels, Liverpool—Sept. 1935, 18

Wheat, No. 2 hard winter, Chicago—Sept. 1935, 18

Corn, United States and Illinois average farm price—May-June 1936, 63

Oats, United States and Illinois average farm price—May-June 1936, 63

Soybeans, United States and Illinois average farm price—May-June 1936, 63

Wheat, Illinois average farm—May-June 1936, 63

Wheat, United States average farm price—May-June 1936, 63

No. 3 yellow corn at Chicago—Sept.-Oct. 1936, 83

Store, retail chain, compared with independent retailers' prices—Dec. 1936, 91

Butter, compared with factory payrolls—Jan.-Feb. 1937, 95

Butter, decline accompanying loss of industrial exports—Jan.-Feb. 1937, 96

Apples, farm price, 1932-1939—Oct. 1939, 273

Butter, wholesale, in the Chicago dairy district, 1914-1921—Jan. 1940, 302

Milk, wholesale market, condensery milk, Chicago dairy district, 1914-1921—Jan. 1940, 302

Milk, home-delivered and store, Chicago and New York City, 1925-1940—Jan. 1941, 460

Property

Owner-operators keeping farm accounts, Illinois, 1935—May-June 1937, 112

Tenant-operators keeping farm accounts, Illinois, 1935—May-June 1937, 113

Real estate

Proportion of, operated by tenure classes, Illinois, 1930 and 1935—Apr. 1936, 53

Roughages

Values and acreages used by various classes of livestock—June 1940, 362

Sales

Milk

Distribution, Class I, by units, St. Louis marketing area, July, 1934-1939—Mar. 1940, 330

Quantity-discount basis, proportion of patrons, Champaign-Urbana, 1933-1938—Aug. 1940, 385

Retail, proportion in gallon lots, Champaign-Urbana, 1933-1938—Aug. 1940, 385

Hogs

Analysis of marketings, 1939—Apr. 1940, 337

Sheep

See **Lambs, Livestock, Roughages**

Soil conservation program

See **Federal programs**

Soybeans

See **Acreages, Consumption, Crop production, Expenses, Imports, Prices, Tariff rates, Yields**

Sweet potatoes

See **Crop production**

Tariff rates

Levied by United States on certain agricultural products—Dec. 1938, 214

Levied by Canada on certain agricultural products—Dec. 1938, 214

Tenancy

Type-of-tenancy survey, comments classified—Jan. 1941, 464

Vegetables

See **Cold storage, Potatoes, Sweet potatoes**

Wheat

See **Acreages, Carryover, Crop production, Exports, Imports, Prices, Stocks, Yields**

Yields

Corn

Illinois, 1919-1934—Jan.-Feb. 1937, 98

Prospective, 1938—June 1938, 178

Trends, Soil Conservation Service cooperating and non-cooperating farms, 1935 and 1937—Jan. 1939, 219

Oats

Illinois, 1919-1934—Jan.-Feb. 1937, 98

Trends, Soil Conservation Service cooperating and non-cooperating farms, 1935 and 1937—Jan. 1939, 219

Soybeans

Trends, Soil Conservation Service cooperating and non-cooperating farms, 1935 and 1937—Jan. 1939, 219

Wheat

Winter wheat in Illinois, 1919-1935—Jan.-Feb. 1937, 99

See also **Federal programs**

Cooperative Extension Work in Agriculture and Home Economics: University of Illinois, College of Agriculture, and the United States Department of Agriculture cooperating. H. P. Rusk, Director. Acts approved by Congress May 8 and June 30, 1914.



ILLINOIS FARM ECONOMICS

Department of Agricultural Economics, College of Agriculture and
Agricultural Experiment Station, in cooperation with the
Agricultural Extension Service, University of Illinois

Urbana

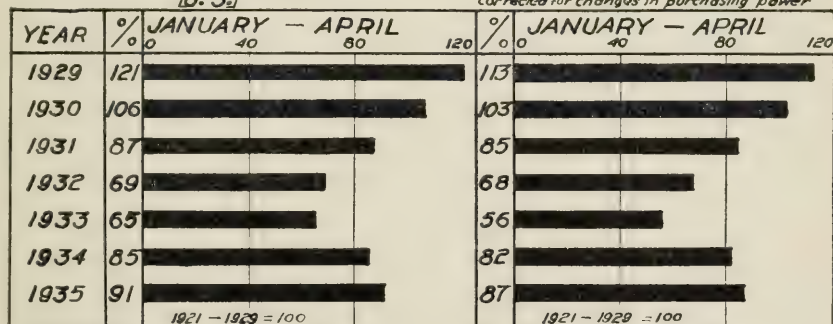
June, 1935

Number 1

During recent years Illinois farmers have had cause to give increasing attention to the economic phases of agriculture. In response to their interest, the College of Agriculture has held Agricultural Adjustment Conferences and Outlook meetings thruout the state for a number of years, has published annual Outlook Reports and in other ways has endeavored to bring current economic information to the attention of farmers and to aid in its interpretation. The time seems opportune to add a further effort in the publication of pertinent and timely economic information which should be useful but is not generally available in condensed form. Consequently, the Department of Agricultural Economics in cooperation with the Agricultural Extension Service is undertaking the publication of "Illinois Farm Economics," as a means of supplying such information. It is the desire to make this publication of distinct service to farmers.

Fig. 1. **INDUSTRIAL PRODUCTION**
[U. S.]

FACTORY PAYROLLS [U.S.]
Corrected for changes in purchasing power



Business Conditions. Changes in industrial production are important to both farmers and city people since increases in farm income and in employment are primarily dependent upon this factor. The course of business activity in the United States which was downward from 1929 to 1933, registered a definite upward trend from 1933 to 1935 (Fig. 1). Industrial production in the first four months of 1935 was 40 percent higher than in the corresponding months of 1933 and 7 percent higher than in 1934.

The income of United States factory workers from January to April, 1935 was 55 percent higher than for the corresponding months of 1933 and 6 percent higher than in 1934. Factory payrolls increased primarily as a result of increased industrial production. Reduction of costs of living in 1933-34 and the program of the N.R.A. were secondary factors causing increases in the purchasing power of factory workers.

The most important factor affecting industrial production and factory payrolls has been the increased production of automobiles. From January to April, 1935, automobile production was two and one-half times that of the corresponding months of 1933, and nearly 50 percent higher than in 1934. The steel and rubber industries ranked next in the rate of increased production. The automobile industry uses the major part of the rubber manufactured in the United States, and is also the largest customer of finished steel, having utilized 21 percent of the total output of this product in 1934.

Only small increases during the past two years have occurred in the production of the food, petroleum, textiles, leather, and tobacco industries, since there were only slight decreases in their production from 1930 to 1933.

Following the world-wide depression, there has been an upward trend in business activity from 1933 to 1935, in England, Germany, Japan, Italy, Canada, Netherlands, Czechoslovakia, and Sweden, as well as in the United States. Low industrial production in France and Belgium constitutes the only exceptions to this general upward trend. It is thus evident that the economic forces influencing the present recovery are world-wide in scope.

Undoubtedly, governmental policies in any particular country tend to accelerate or retard the rate of business recovery. World-wide improvement, however, is the dominant factor in the present business situation. Consequently, while some adjustments will be necessary, for some businesses, it is reasonable to believe that the discontinuance of the major part of the N.R.A. program in the United States following the recent Supreme Court decision is not likely to affect seriously the present upward trend of business activity in this country.

Effect of Weather Conditions. Weather conditions since April 1 have had a marked effect upon the normal seasonal program of Illinois farmers. Continued and excessive rainfall in most sections of the state and cool weather have delayed planting operations of corn and soybeans, and necessitated replanting of some early-planted corn. These conditions have caused a serious peak in demands for labor and power resulting in long hours and much night work. These unfavorable conditions have had their compensation, however, in the rapid recovery of pastures following the 1934 drouth, the replacement of depleted subsoil moisture, development of small grains, and reducing the anticipated damage from chinch bugs.

According to Professor Flint, State Entomologist, the cool weather has greatly retarded the development of chinch bugs, and little damage to small grains is expected. Damage to corn will be late and less severe than last year, with barriers necessary on a small proportion of the small grain fields.

Illinois Farm Prices. The indexes of Illinois grain prices in May 1935, averaged 11 percent less than for April (Table B). Decreases in the farm prices of corn, wheat, oats, and barley can be attributed to improved crop prospects for these products. Illinois farm prices in May for hogs, milk cows, sheep, and horses were slightly higher, and for beef cattle, lambs, and veal calves slightly lower than those for April when corrected for seasonal variation. The index of butterfat prices in May, 1935, was 19 percent lower than the April index. Indexes of farm prices of milk, eggs, and chickens were slightly higher in May than in April. The Illinois combined index of farm prices was 3 percent lower in May than in April, largely as a result of the reduction in prices of grain and of butterfat.

Wheat Prospects. Present indications point to a carryover of old wheat in the United States on July 1 of about 160,000,000 bushels. While this is somewhat larger than that for the years 1925-1928, it is much below the figures of more recent years. A marked increase in carryover began in 1929 and continued until 1933, when it reached about 390,000,000 bushels. These increases resulted in large part from shrinkage in export demand. The reduction in carryover since 1933 has been the result of lower production as affected by unfavorable seasons, insect damage, and by the acreage control program. Estimates as of May 1 indicated a winter wheat crop of 30,497,000 acres and a production of 432,000,000 bushels. This represents an increase of 6 percent over the short crop of 1934, but a reduction of 30 percent from the average for the five-year period 1928-1932. With favorable moisture conditions during May over much of the important wheat area, it is probable that later estimates will show some increase.

The spring wheat crop was expected to be about the same as that planted in 1934. Drouth conditions last year caused abandonment of nearly half the acreage seeded and low yields generally. With conditions quite favorable this year in most of the area, a more normal production appears likely. Total wheat production for 1935 appears ample to meet domestic requirements, and with good yields may provide some wheat for export.

The Hog Situation. The prices of hogs and the numbers going to market continue to reflect the drastic decrease in numbers last year. As a result the usual seasonal increase in numbers marketed during the early summer months is expected to be less than normal. Market supplies for the latter part of the year will be indicated more definitely when the June pig survey becomes available, but earlier indications pointed to a spring pig crop considerably less than that of 1934. Altho market weights have increased with recent improvement in the corn-hog ratio, slaughter supplies are likely to continue small for at least another year.

Storage stocks of pork on May 1 were 77 percent of the five-year average 1930-1934 compared with 90 percent a year ago; stocks of lard were 89 percent of the five-year average, compared with 160 percent a year ago. A low level of exports is likely to continue, due both to reduced domestic production and trade restrictions imposed by purchasing countries. Prices of hogs are likely to be influenced largely by consumer purchasing power in this country and by prices of competing meats.

The Dairy Situation. June is usually the peak month of the year in milk production. The surplus milk during this season goes largely into manufactured products, particularly butter, much of which is stored. Total production of milk was much below normal during the past year due to a 5-percent reduction in number of cows and to shortage and high price of feed. As a result, butter in storage on May 1 amounted to only 39 percent of the five-year average 1930-1934.

Continued high grain prices will limit supplemental feeding during the summer months. On the other hand, Illinois pasture conditions on May 1 were 92 percent of normal and with ample rains have improved since then. While farm prices of butter fat dropped 8 cents a pound from April 15 to May 15, or more than the usual seasonal change, this reflected the change from the shortage of production during the winter and early spring months to the cheaper production on pasture. Prices on May 15 were 5 cents a pound above those of a year earlier and with short storage stocks and a rather steady demand for dairy products should maintain a fairly firm position.

TABLE A.—INDEXES OF BUSINESS CONDITIONS, 1921-1929 = 100

	Whole-sale prices of all commodities (U. S.) ¹	Farm prices		Cash income to Illinois farmers		Prices paid by farmers for commodities bought (U. S.) ¹	Purchasing power of income to Illinois farmers	Factory payrolls in the United States ⁴	Cost of living in the United States ⁵	Purchasing power of factory payrolls
		Illinois ²	United States ¹	Millions ¹	Indexes ³					
1929.....	97	109	103	\$560.2	108	100	108	112	99	113
1930.....	88	95	89	451.8	88	96	92	90	95	95
1931.....	74	65	61	315.3	61	82	74	68	86	68
1932.....	66	44	46	228.7	44	71	62	48	77	62
1933.....	67	47	49	276.7	54	70	76	49	74	67
1934.....	76	64	64	321.5	62	80	78	64	78	82
Apr. 1934....	75	56	59	19.7	58	78	74	69	78	88
Jan. 1935....	79	88	74	33.8	65	83	78	69	80	86
Feb.....	80	90	78	26.6	66	83	80	71	81	88
Mar.....	80	91	77	27.0	68	83	82	71	82	87
Apr.....	82	94	80	....	..	83	..	72	82	88

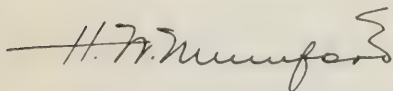
TABLE B.—PRICES AND PRICE INDEXES OF ILLINOIS FARM PRODUCTS

Product	Prices					Indexes: same month 1921-1929 = 100		
	May average		May 1934	April 1935	May 1935	May 1934	April 1935	May 1935
	1910-14	1921-29						
Corn, bu.....	\$.59	\$.74	\$.43	\$.82	\$.80	58	117	108
Oats, bu.....	.39	.42	.30	.49	.41	71	117	98
Wheat, bu.....	.94	1.29	.75	.90	.87	58	71	67
Barley, bu.....	.65	.66	.53	.71	.59	79	108	88
Hogs, cwt.....	7.42	9.30	3.20	8.41	8.50	34	89	91
Beef cattle, cwt..	6.02	7.90	5.30	8.34	8.30	67	109	105
Lambs, cwt.....	6.28	11.83	7.81	7.43	7.40	66	64	63
Milk cows, head	54.30	72.30	35.00	46.33	52.00	49	65	72
Veal calves, cwt..	6.86	9.79	5.40	8.03	7.60	55	81	78
Sheep, cwt.....	4.72	6.38	3.25	3.76	3.70	51	56	58
Horses, head....	153.00	89.00	91.00	106.00	110.00	102	119	124
Butterfat, lb.....	....	.37	.21	.34	.26	56	83	70
Milk, cwt.....	1.15	2.06	1.30	1.65	1.60	63	75	78
Eggs, doz.....	.162	.22	.13	.20	.21	57	90	95
Chickens, lb....	.12	.22	.11	.162	.163	50	74	75
Wool, lb.....	.194	.32	.24	.16	.16	75	50	50
Apples, bu.....	1.30	2.01	1.75	1.50	1.35	87	72	67
Hay, ton.....	14.31	14.37	10.30	14.61	14.30	72	103	100
Potatoes, bu....	.82	1.34	1.00	.70	.60	75	52	45
Illinois index of farm products.....	55	94	91

1-3For sources of data in tables see previous page.

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ILLINOIS FARM ECONOMICS

Department of Agricultural Economics, College of Agriculture and
Agricultural Experiment Station, in cooperation with the
Agricultural Extension Service, University of Illinois

Urbana

July, 1935

Number 2

Illinois Conditions. Crop production in Illinois appears likely to be quite spotted again this year. For the past two years farm incomes have reflected the spotted conditions of crops due to weather and insect damage. This year most of the state has had excessive rainfall, which has been localized to a marked degree, with the result that some areas have been affected to a greater degree than others. Much hay has been lowered in quality; small grains harvested with difficulty in some areas, as well as some damage from rust and lodging; corn is generally late, much of it in weedy condition, with some areas unable to plant a normal acreage, and others subject to severe flood damage. On the other hand pastures have been abundant, the chinch bug threat eliminated in most parts of the state, prospects good for ample feed production generally, and farm work moving ahead despite the difficulties of the season.

Business Conditions and Illinois Farm Prices. Business activity declined slightly from April to May, when corrected for seasonal variation. This was caused primarily by the falling off of automobile production in May, this being 22 percent less than for April. Part of this decline can be attributed to labor troubles. Retail sales of automobiles in May were about the same as last year, but below expected sales as a result of unfavorable weather conditions prevailing in many parts of the United States.

Low stocks of manufactured goods and of non-ferrous metals are favorable aspects of the business situation. Sales of cotton goods apparently exceeded production during the latter part of May.

The index of wholesale prices of all commodities in the United States was the same in May as in April (Table A). The June index has declined one point from that of May as a result of a 3.5 point decline in farm prices during June.

Illinois farm prices declined from an index of 91 in May, 1935 to an index of 88 in June when corrected for seasonal variation (Table B). Prices of 14 of the 19 commodities shown in Table B declined during the past month. The largest price declines were suffered by oats, wheat, butterfat, and apples, each of these commodities having experienced a decline of 9 or more points during the past month. Hog prices increased from \$8.50 per hundred pounds in May to \$9.00 in June. The June 1935 price for hogs, without processing tax, was practically the same as the June average for the nine years, 1921-1929. Wool prices increased 10 points, while prices for milk cows also increased during the past month. Prices for sheep and chickens remained the same as in May.

Indexes of purchasing power of income to Illinois farmers continued their upward trend. In April 1935 its index was 84 compared with 82 in March and 80 in February, and 74 one year ago. Illinois farmers received 34.3 million dollars of cash income in April 1935, 27 million dollars in March, and 26.6 million dollars in February.

The total farm income in the United States including rental and benefit payments for the first four months of 1935, was 1905 million dollars as compared with 1695 million dollars in the same months last year. This represented an increase of 11 percent above that one year ago.

The June 1 Pig Crop Report. The market decline in numbers of hogs during 1934 has been reflected in the spring pig crop of 1935. Figures recently released by the United States Department of Agriculture indicate a spring pig crop 19.6 percent below the very small spring crop of 1934 for the United States, a decrease of 22.3 percent in the Corn Belt and 19 percent in Illinois.

Three causes have contributed to this decrease; the corn-hog reduction program, the feed shortage due to the drouth of 1934 and a very unfavorable corn-hog ratio which continued to the end of the past winter. The marked effect of the last two causes was indicated by the wide variations in changes from last year as between areas. The largest decreases were in the states most severely affected by the drouth. A further effect of feed shortage was a much larger than usual proportion of spring pigs farrowed in May, and a much smaller proportion of early pigs.

The decrease in the spring pig crop from 1934 amounted to 7.4 million head; and a decrease of 20.8 million head or 40 percent from the number saved in 1932 and 1933, the latter year of which represented the peak in hog numbers during the last cycle.

The number of sows to farrow in the fall of 1935 is 19.5 percent larger than the very small number farrowed in 1934. For the Corn Belt the indicated increase is 28.3 percent, and 20 percent for Illinois. The largest increases are in the North Central States west of the Mississippi River, where drouth has greatly reduced hog production.

Because the number of pigs farrowed in the spring is much larger than in the fall, the total numbers indicated for 1935, including both spring and fall litters will be 10 percent smaller than in 1934 for the country, 12 percent for the Corn Belt and 10 percent for Illinois. This reduction in farrowing together with small numbers of hogs over six months of age on farms indicates short market receipts at least through the next marketing year, or until September 30, 1936.

Cold Storage Holdings. Data on cold storage holdings are of interest to producers since such stocks provide a means of adjustment between the supply of and the demand for perishable food products. Storage operators are interested in buying when the price is low for the season and selling when it is high. From the producer's standpoint this provides a wider market or demand during the season of surplus production and a higher price than would otherwise prevail, and makes available a greater supply during periods of slack production, and a lower consumer's price. In this way the surpluses and shortages due to the seasonal nature of production of most food products are leveled off.

Cold storage holdings of butter on June 1 were 93 percent of the five year average, 1930-1934, for that date, eggs were 84 percent, poultry 111 percent, beef 138 percent, pork 70 percent, and lard 72 percent. During May storage hold-

ings of butter and eggs increased materially, while that of all meats and lard declined. During May the volume in storage increased much more than the usual seasonal change in the case of butter, decreased much more in the case of beef, pork, and lard, and was about the normal change in stocks of eggs and poultry.

More Farms in Illinois. The number of farms in Illinois increased from 214,497 in 1930 to 232,610 in 1935, according to the preliminary report of the United States Census. With few exceptions all counties in the state had a part in this increase of more than 18,000 farms. A considerable number of counties located mainly in the southern one-third of Illinois showed increases of 10 to 25 percent in the number of farms per county.

In general the large increases in numbers of farms were found on land of relatively low producing capacity and where farmers in past years have received a low return for their efforts. Most of this increase in the number of farmers during the depression represents the return to old home communities of those who had sought an opportunity of working in cities during the period of greater

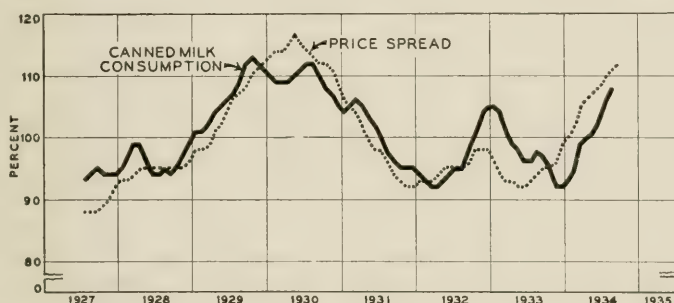


FIG. 1.—INDEXES OF SPREAD BETWEEN RETAIL PRICES OF WHOLE MILK AND EVAPORATED MILK, AND CONSUMPTION OF CANNED MILK, UNITED STATES, 1927-1934
(12 months moving averages, 1927-1934 = 100)

business activity. Quite naturally the drift away from farms in past years has been most marked in those areas where the opportunity in farming has been least. This increase in number of farms represents a reduction in the average size of farms and largely in areas where farms did not provide a large enough business to afford a good standard of living before this subdivision took place. Houses which had been empty for several years have been occupied again. Recent studies of farm incomes in different sections of the state by the University of Illinois show clearly that in those communities with the heaviest increase in number of farmers, incomes are not adequate under present price conditions to provide good living standards. This situation is one of the best indications of the need for careful land use planning for the state. If it is necessary for an increased number of people in Illinois to live on the land, it is highly essential that resettlement be directed on the best possible social and economic basis.

H. C. M. CASE

High Whole Milk Prices Encourage Canned Milk Consumption. Consumers in the United States buy more condensed and evaporated milk when retail prices of whole milk are high compared with retail prices of canned milk. (Fig. 1). Likewise, when whole milk is relatively cheap, consumption of canned

milk decreases.¹ Canned milk includes both condensed and evaporated milk. From 1927 to 1930 the retail price of evaporated milk decreased from 10.4 to 9.2 cents per 14½ ounce can, or 11.5 percent. (Table 1). Since whole milk prices decreased less than one percent during this period, this widened the price spread between whole and canned milk from 3.7 cents to 4.8 cents per quart, or a net increase of about 30 percent. Coincident with this increase in price spread the apparent consumption of canned milk increased from 1754 million pounds in 1927 to 2086 million pounds in 1930, or a net increase of 18.9 percent.

From July 1930 to April 1932, the apparent consumption of evaporated milk declined to approximately the 1927 level. During this period, the price spread between whole and canned milk declined from 4.8 to 3.9 cents per quart, a net decrease of 18.8 percent.

TABLE 1.—AVERAGE RETAIL PRICES OF WHOLE MILK AND EVAPORATED MILK, PRICE SPREADS, AND APPARENT CONSUMPTION OF CANNED MILK, UNITED STATES, 1927-1934

Year	Retail Prices ¹		Price Spread	Consumption of Canned Milk ²
	Whole Milk	Evaporated Milk		
	cents per quart	cents per 14½ ounce can	cents	Million pounds
1927.....	14.1	10.4	3.7	1754
1928.....	14.2	10.2	4.0	1758
1929.....	14.3	9.9	4.4	1994
1930.....	14.0	9.2	4.8	2086
1931.....	12.4	8.3	4.1	1896
1932.....	10.8	6.9	3.9	1789
1933.....	10.6	6.6	4.0	1782
1934.....	11.4	6.8	4.6	1954

¹U. S. Bureau of Labor Statistics. ²Agricultural Situation, U. S. Bureau of Agricultural Economics.

In the latter part of 1932, with a 5 percent increase in price spread, canned milk consumption increased 13 percent. Likewise, a net decrease of 6 percent in price spread in the first six months of 1933 was accompanied by a decrease of 8.5 percent in canned milk consumption during the same period. This reflected the extreme sensitiveness of consumers to price changes as a result of unusually low purchasing power during 1932 and 1933.

From the middle of 1933 thru 1934, whole milk prices advanced much more rapidly than evaporated milk prices. This rapid increase in price spread between whole and canned milk was accompanied by such a marked increase in canned milk consumption that indexes of this factor have risen nearly to the high point reached in 1929.

Retail prices of whole milk in Connecticut as compared with those for canned milk, have been much higher than for the United States as a whole. As a result of this wide price spread, canned milk consumption in Connecticut in 1935 was approximately twice that of the early part of 1930.²

JESSE T. PALMER

Increase in Factory Payrolls Greater than Retail Food Prices. The purchasing power of factory workers in the United States declined more rapidly than retail food prices from 1929 to 1932. In contrast, from 1933 to 1935, factory payrolls increased more rapidly than either retail food prices or the cost of living

¹The coefficient of correlation = +.86 ± .019.

²Based on data compiled by Dr. E. A. Perregaux, Connecticut State Agricultural College.

(Fig. 2). This fact is of special significance in view of the rapid rise in retail food prices which has occurred during the past year.

From 1929 to 1932, factory payrolls declined 45 percent, retail food prices 35 percent and cost of living of factory workers, 22 percent.

During the recovery period, 1933 to 1935, factory payrolls increased 36 points from the low of March, 1933, retail food prices 23, and cost of living 12 points. The present high position of factory payrolls (1921-29 = 100) in relation to retail food prices is shown in Fig. 3.

WAYNE CASKEY

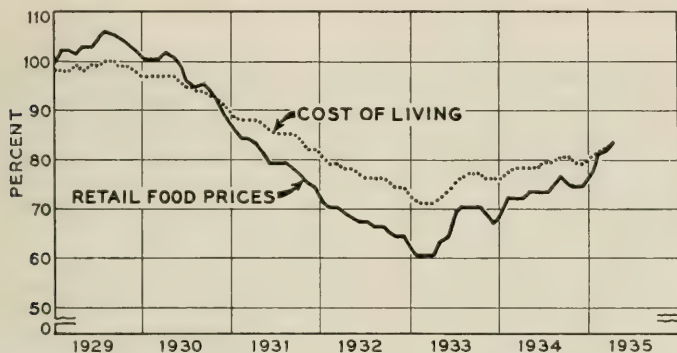


FIG. 2.—RETAIL FOOD PRICES AND COST OF LIVING IN THE UNITED STATES, 1929-1935
(Same month 1921-1929 = 100)

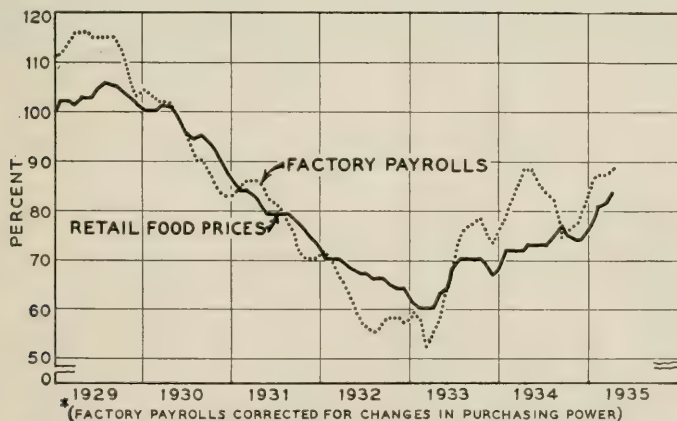


FIG. 3.—RETAIL FOOD PRICES AND FACTORY PAYROLLS IN THE UNITED STATES, 1929-1935
(Same month 1921-1929 = 100)

Proportion of National Income Received by Farmers. For the period 1910-1934, farm income in the United States constituted 12 percent of the total national income when corrected for changes in purchasing power.¹ The pro-

¹Data on national income and agricultural income for 1910-1929 were obtained from "America's Capacity to Produce," published by the Brookings Institute of Economics, p. 152. Data for 1930-1933 were obtained from the National Income, 1933, Division of Economic Research, published in the Survey of Current Business, January, 1935; national income for 1934 from the Cleveland Trust Company Business Bulletin, February 15, 1935; and agricultural income for 1934 from "Cash Income from Farm Marketings," U. S. Bureau of Agricultural Economics. Data from 1930-1934 were adjusted to maintain consistency with the previous data.

In correcting for changes in purchasing power, non-agricultural income was divided by cost of living indexes, and farm income by indexes of prices paid by farmers for commodities bought (Table A). All discussion of income in this paper refers to "purchasing power" of income.

portion of income going to farmers decreased from an average of 15.3 percent of the national income, 1910-1914, to 11.6 percent for 1920-1929. This decline in the proportion of national income received by farmers can be attributed primarily to:

1. A major increase in non-agricultural income without a corresponding increase in agricultural income (Fig. 4). For the nine years 1920-1929, non-agricultural income was 43 percent higher than for 1910-1914, while agricultural income increased only 3.5 percent during this period.

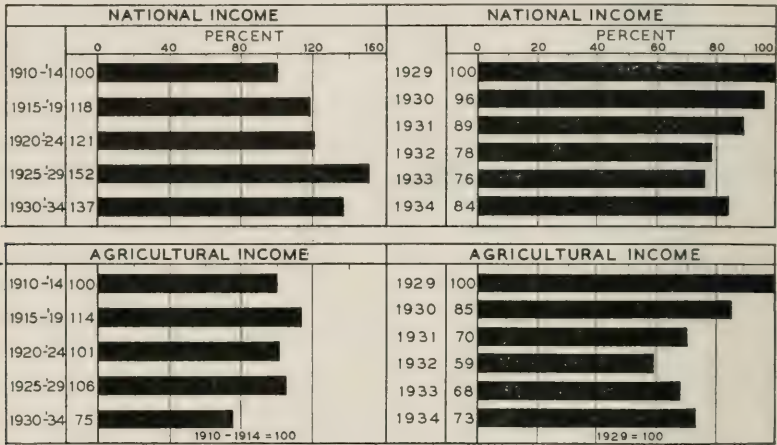


FIG. 4.—PURCHASING POWER OF NATIONAL AND AGRICULTURAL INCOME, 1910-1934

2. A major decrease in the proportion of the population engaged in agriculture. In 1910 about 30 percent of the people gainfully employed were engaged in agriculture, while in 1930 a little over one-fifth were in agriculture, according to data assembled by Dr. O. E. Baker, U. S. Bureau of Agricultural Economics (Fig. 5). Productivity on farms has increased very rapidly, the average farm worker in 1930 producing about 2.5 times as much as in 1870, and about 1.4 times as much as in 1910.

From 1930-1934, farmers received 8.3 percent of the national income as compared with 11.6 percent from 1920-1929. The decrease at this time in the proportion of national income received by farmers can be attributed primarily to:

(1) A major decline in income of factory and farm workers in the United States, without a corresponding decline in income of non-agricultural groups other than factory workers. Income of factory workers and farmers together averaged nearly one-third of the national income in 1929, while in 1932 they averaged only about one-fifth of this income.

(2) A major decline in agricultural exports as a result of decreased consumer income, increased tariffs and other trade restrictions by countries importing farm products from the United States.

In 1932, the low year, farmers received only 7.5 percent of the national income. By 1934, this had increased to 8.6 percent, about the same proportion as received in 1930.

From 1929 to 1932 the purchasing power of incomes to farmers in the United States declined nearly twice as fast as national income (Fig. 4). In contrast, since 1932, farm income has increased over twice as fast as national income, tho still low in relation to the 1929 level of farm income. Thus in 1932, national income was 22 percent lower, while agricultural income was 41 percent lower than in 1929. From 1932 to 1934, farm income increased 14 points while national income increased only 6. In 1934, income to farmers in the United States was 27 percent lower than the 1929 level while national income was 16 percent lower.

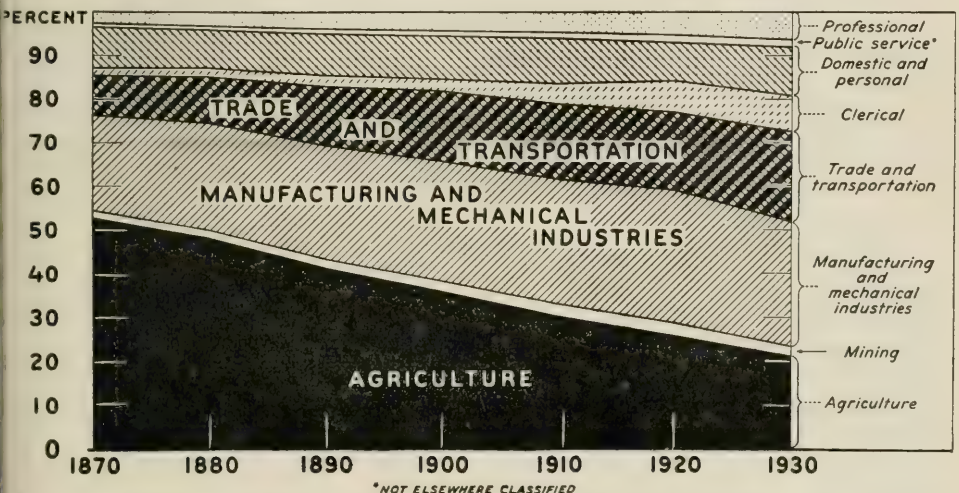


FIG. 5.—SHIFTS IN OCCUPATION OF WORKERS 16 YEARS AND OVER, UNITED STATES, 1870-1930 (Illustration from Bureau of Agricultural Economics, U.S.D.A.)

The upward movement of farm income which took place from 1932 to 1934 has continued in 1935. The index of purchasing power of cash income of Illinois farmers increased from 74 in April, 1934, to 84 in April, 1935 (Table A). This increase was more rapid than that for the United States.

R. W. BARTLETT

Original data for Tables A and B were obtained from the following sources: (1) Bureau of Agricultural Economics, U. S. D. A.; (2) Illinois Crop Reporting Service, Illinois State Department of Agriculture, and U. S. Department of Agriculture, cooperating; (3) Monthly data include an average of current month with eleven preceding months; (4) Federal Reserve Board; (5) National Industrial Conference Board.

Explanation of Computations in Tables A and B

The base determined from the corresponding months, 1921-1929 = 100, was used in calculating the indexes for each of the series included in Tables A and B. Thus the U. S. Bureau of Labor Statistics index of wholesale prices of 784 commodities is published on a 1926 base; to correct this for a given month, as April 1935, the published index of 80.1 for that month was multiplied by 1.0214, which was the factor obtained by averaging the nine April indexes, 1921-1929, and dividing this into 100. This same factor was used in correcting the April indexes of wholesale prices for each year, 1929-1935. For each month and for annual data a correction factor was obtained in a similar way.

Purchasing power of income to Illinois farmers was obtained by dividing the indexes of cash income to Illinois farmers by indexes of prices paid by farmers for commodities bought.

Purchasing power of factory payrolls was obtained by dividing indexes of factory payrolls in the United States by indexes of cost of living in the United States.

TABLE A.—INDEXES OF BUSINESS CONDITIONS, 1921-1929 = 100

	Whole-sale prices of all commodities (U. S.) ¹	Farm prices		Cash income to Illinois farmers		Prices paid by farmers for commodities bought (U. S.) ¹	Purchasing power of income to Illinois farmers	Factory payrolls in the United States ⁴	Cost of living in the United States ⁵	Purchasing power of factory payrolls
		Illinois ²	United States ³	Millions ¹	Indexes ³					
1929.....	97	109	103	\$560.2	108	100	108	112	99	113
1930.....	88	95	89	451.8	88	96	92	90	95	95
1931.....	74	65	61	315.3	61	82	74	68	86	68
1932.....	66	44	46	228.7	44	71	62	48	77	62
1933.....	67	47	49	276.7	54	70	76	49	74	67
1934.....	76	64	64	321.5	62	80	78	64	78	82
May, 1934....	75	55	59	23.1	56	79	71	69	78	88
Feb. 1935....	80	90	78	26.6	66	83	80	71	81	87
Mar. 1935....	80	91	77	27.0	68	83	82	71	82	87
Apr. 1935....	82	94	80	34.3	70	83	84	72	83	88
May 1935....	82	91	77	.....	..	83	..	70	82	85

TABLE B.—PRICES AND PRICE INDEXES OF ILLINOIS FARM PRODUCTS

Product	Prices					Indexes: same month 1921-1929 = 100		
	June average		June 1934	May 1935	June 1935	June 1934	May 1935	June 1935
	1910-14	1921-29						
Corn, bu.....	\$.61	\$.78	\$.51	\$.80	\$.79	65	108	101
Oats, bu.....	.40	.42	.38	.41	.36	90	98	86
Wheat, bu.....	.91	1.24	.86	.87	.78	69	72	63
Barley, bu.....	.65	.67	.66	.59	.55	98	88	82
Hogs, cwt.....	7.32	9.02	3.65	8.50	9.00	40	91	100
Beef cattle, cwt..	6.02	7.96	5.40	8.30	8.20	68	105	103
Lambs, cwt.....	6.28	11.90	7.30	7.40	7.30	61	63	61
Milk cows, head	53.00	72.00	35.00	52.00	53.00	49	72	74
Veal calves, cwt.	7.02	9.90	5.10	7.60	7.30	52	78	74
Sheep, cwt.....	4.16	5.64	2.65	3.70	3.30	47	58	58
Horses, head....	153.00	88.00	86.00	110.00	106.00	98	124	120
Butterfat, lb.....	.....	.36	.22	.26	.22	61	70	61
Milk, cwt.....	1.07	2.01	1.40	1.45	1.35	70	70	67
Eggs, doz.....	.16	.22	.12	.21	.20	54	95	91
Chickens, lb.....	.11	.21	.11	.16	.16	52	75	75
Wool, lb.....	.19	.33	.23	.16	.20	69	50	60
Apples, bu.....	1.56	2.31	1.60	1.35	1.35	69	67	58
Hay, ton.....	14.25	13.92	11.20	14.30	13.30	80	100	96
Potatoes, bu.....	.91	1.46	1.05	.60	.60	72	45	41
Illinois index of farm prices.....	60	91	88

¹⁻⁵For sources of data in tables see previous page.

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ILLINOIS FARM ECONOMICS

Department of Agricultural Economics, College of Agriculture and
Agricultural Experiment Station, in cooperation with the
Agricultural Extension Service, University of Illinois

Urbana

August, 1935

Number 3

Unemployment and Factory Payrolls. The most serious problem still confronting Federal, state, and local governments is unemployment. The peak of unemployment in the United States was reached in April, 1933, when there were 13,300,000 people out of work, according to data compiled by the National Industrial Conference Board (Fig. 1). By June, 1935, this number had decreased to 9,711,000, a net decrease of 3,589,000, or 27 percent in the two-year period.

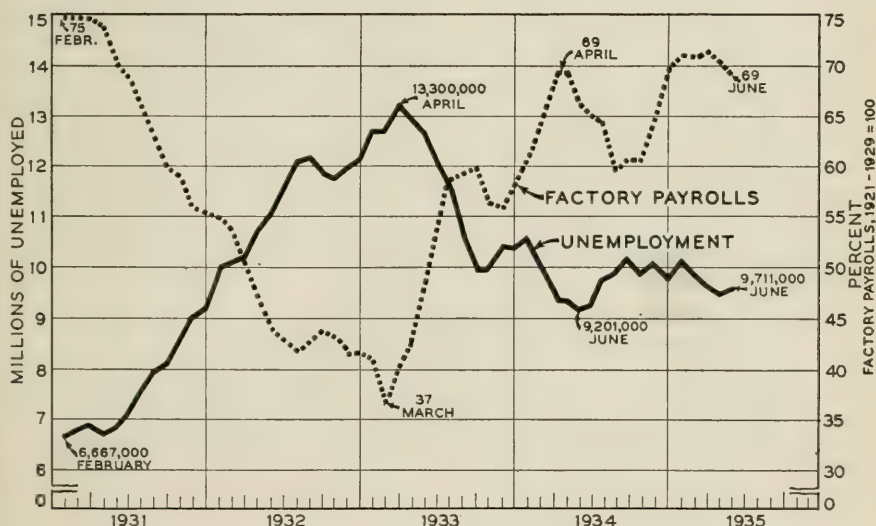


FIG. 1.—UNEMPLOYMENT AND FACTORY PAYROLLS IN THE UNITED STATES

Unemployment increases when factory payrolls decline. The greatest decrease in factory payrolls occurred in 1931 and 1932. Coincident with this very rapid decrease in payrolls was a marked increase in unemployment. In March, 1933, the lowest month, factory payrolls were about half those two years earlier. In April, 1933, unemployment was approximately twice that of February, 1931.

During the upward movement of business activity since 1933, factory payrolls have increased and the number of unemployed has decreased. Factory pay-

rolls increased from an index of 37 in March, 1933 to an index of 69 in April, 1934, this being accompanied by a marked decrease in unemployment.

Following a decline in the summer months of 1934, payrolls increased rapidly during the fall months and the early part of 1935. Present indications are that the decline in business activity during the summer months of 1935 will be small compared with that of 1934. The general movement of unemployment has been slightly downward since February, 1935.

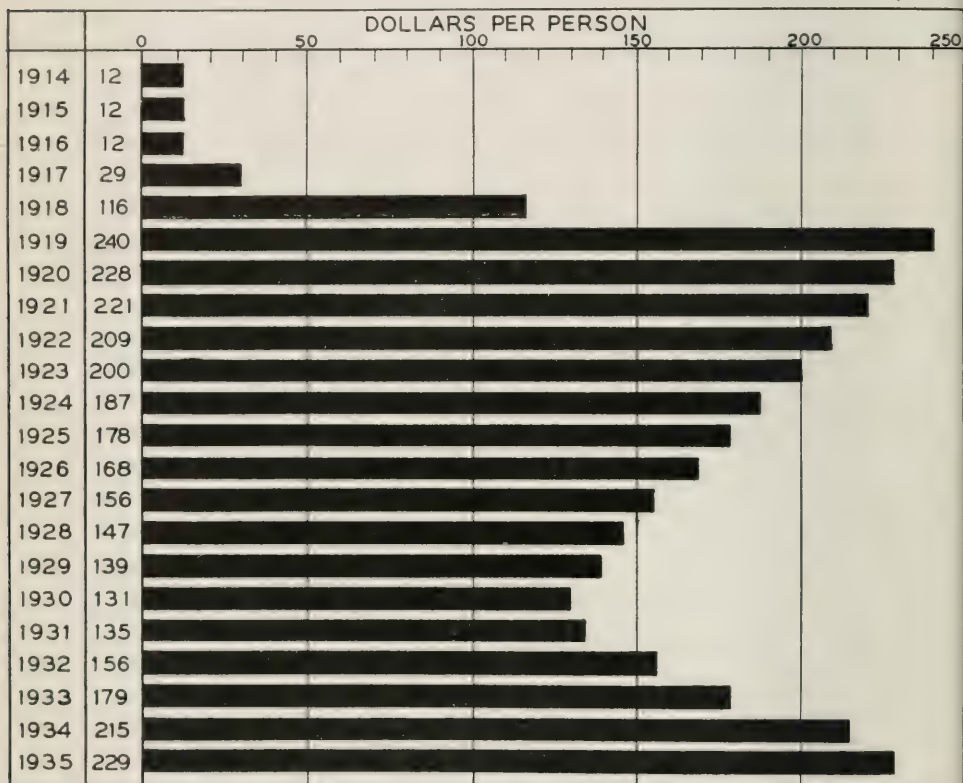


FIG. 2.—NATIONAL PER CAPITA DEBT IN THE UNITED STATES ON JULY 1, 1914-1935

National Debt. Many farmers are seriously considering the changes in the national debt in the United States which have occurred in recent years. Two reasons why one should not become unduly alarmed over these changes are: (1) the Federal per capita debt in 1935 is less than it was in 1919;¹ and (2) the annual interest burden on this debt is lower than in 1919.

On July 1, 1914 the gross public debt of the Federal government was 1.2 billion dollars or \$12 per person (Fig. 2). In 1919 this had increased to 25.5 billion dollars, or \$240 per person, an increase of 24.3 billion dollars in five years.

By 1930, the Federal debt had been reduced to 16.2 billion dollars, or \$131 per person. This was a net decrease of 9.3 billion dollars.

¹Based on data from the U. S. Statistical Abstract, 1933 and Federal Reserve Bulletins.

On July 1, 1935 the Federal debt had increased to about 29 billion dollars, or \$229 per person, an increase of 12.8 billion dollars in five years.

Under conditions of normal business the present Federal per capita debt can be reduced without undue hardship to taxpayers. Unemployment has been the underlying cause for the increase in the public debt. Continued increases in private employment and consumer incomes are basically necessary to prevent further increases in the public debt and to make possible reduction of this debt.

Illinois Farm Prices. Continued improvement in crop prospects resulted in a decline in prices during the past month of 13 of the 19 farm products shown

TABLE 1.—ACREAGE AND PRODUCTION OF SPECIFIC ILLINOIS CROPS AS REPORTED BY THE UNITED STATES DEPARTMENT OF AGRICULTURE

	Acreage (thousands of acres)				Total production (millions of bushels)			
	Average 1921-1932	1934	1935 ¹	Percent that 1935 is of 1921-1932	Average 1921-1932	1934	1935 ¹	Percent that 1935 is of 1921-1932
Corn.....	8,896	7,159	7,589	85	319.7	146.8	227.7	71
Wheat.....	2,322	1,832	1,896	82	39.5	30.5	31.4	80
Oats.....	4,338	3,029	3,786	87	140.9	33.3	140.1	99
Barley.....	311	93	60	19	9.1	.88	1.80	20
Hay.....	2,838	2,630	2,918	103	3.3 ²	2.66 ²	3.79 ²	115
Soybeans.....	368	1,204	1,866	507	2.7	9.52	....	....

¹As indicated in the crop report, July 1. ²Millions of tons.

in Table B, when corrected for seasonal variation. The largest price declines were for hay, apples, barley, oats and chickens. Prices of lambs, wool, horses, and potatoes increased slightly. The combined index of farm prices declined from 88 in June to 84 in July.

Crop Conditions in Illinois. Favorable weather conditions in July have materially improved crops in Illinois and at least partially overcome lateness of planting corn and other spring crops. It is estimated that the combined production of corn, wheat, and oats, in Illinois for 1935 will be 399.2 million bushels, as compared with a production of 210.6 million bushels in 1934 and an average of 500.1 million bushels for 1921-1932. The estimated production of these crops for 1935 is nearly double that for 1934 and about four-fifths that of the 12-year average. The estimated 1935 production of corn is 71 percent of that for 1921-1932; of wheat, 80 percent; oats, 99 percent; barley, 20 percent; and hay, 115 percent.

The estimated soybean acreage of 1,866,000 acres in 1935 is 55 percent higher than that of 1934 and over 5 times as much as the average for 1921-1932. The estimated 1935 acreage of corn is 85 percent of that for 1921-32; of wheat, 82 percent; of oats, 87 percent; of hay, 103 percent; and of barley, 19 percent. The very low acreage of barley can be attributed to the very small yields from this crop in recent years, resulting from the chinch bug menace, and unfavorable weather conditions.

A continuation of favorable weather conditions for growth and harvesting is likely to result in an abundance of roughage and feed for the feeding year of 1935-1936 in contrast with shortages which prevailed this past year.

Original data for Tables A and B were obtained from the following sources: (1) Bureau of Agricultural Economics, U. S. D. A.; (2) Illinois Crop Reporting Service, Illinois State Department of Agriculture, and U. S. Department of Agriculture, cooperating; (3) Monthly data include an average of current month with eleven preceding months; (4) Federal Reserve Board; (5) National Industrial Conference Board. For explanations of computations, see Number 2, July, 1935.

TABLE A.—INDEXES OF BUSINESS CONDITIONS, 1921-1929 = 100

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1933.....	67	47	49	276.7	54	70	76	49	74	67
1934.....	76	64	64	321.5	62	80	78	64	78	82
June, 1934...	77	60	62	21.5	55	79	70	67	78	85
Mar., 1935...	80	91	77	27.0	68	83	82	71	82	87
Apr., 1935...	82	94	80	34.3	70	83	84	72	83	88
May, 1935...	82	91	77	33.5	72	83	87	70	82	85
June, 1935...	82	88	74	83	..	69	82	84

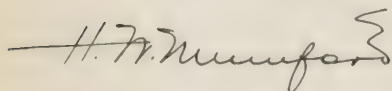
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Product	Prices					Indexes: same month 1921-1929 = 100		
	July average		July 1934	June 1935	July 1935	July 1934	June 1935	July 1935
	1910-14	1921-29						
Corn, bu.....	\$.63	\$.81	\$.54	\$.79	\$.79	67	101	98
Oats, bu.....	.38	.39	.38	.36	.29	97	86	74
Wheat, bu.....	.86	1.17	.82	.78	.74	70	63	63
Barley, bu.....	.63	.65	.66	.55	.42	102	82	65
Hogs, cwt.....	7.54	9.64	4.20	9.00	9.10	44	100	94
Beef cattle, cwt..	6.04	7.99	5.40	8.20	7.90	68	103	99
Lambs, cwt.....	6.04	11.29	6.70	7.3	7.30	59	61	65
Milk cows, head	53.00	72.00	35.00	53.00	53.00	49	74	74
Veal calves, cwt..	7.00	10.02	4.95	7.30	7.10	49	74	71
Sheep, cwt.....	4.14	5.62	2.40	3.30	2.95	43	58	57
Horses, head....	153.00	88.00	82.00	106.00	107.00	93	120	122
Butterfat, lb....	....	.36	.21	.22	.22	58	61	61
Milk, cwt.....	1.29	2.19	1.45	1.35	1.35	66	67	62
Eggs, doz.....	.15	.23	.12	.20	.20	52	91	87
Chickens, lb....	.12	.22	.12	.16	.14	54	75	64
Wool, lb.....	.19	.33	.23	.20	.21	69	60	63
Apples, bu.....	.77	1.63	1.20	1.35	.60	74	58	37
Hay, ton.....	13.91	13.24	12.00	13.30	9.70	91	96	73
Potatoes, bu....	1.03	1.62	1.10	.60	.70	68	41	43
Illinois index of farm prices.....						63	88	84

¹⁻⁵For sources of data in tables see previous page.

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ILLINOIS FARM ECONOMICS

Department of Agricultural Economics, College of Agriculture and
Agricultural Experiment Station, in cooperation with the
Agricultural Extension Service, University of Illinois

Urbana

September, 1935

Number 4

Illinois Farm Prices. Major advances in farm prices of hogs, wheat, and apples took place from July to August. (Table B). The rise in hog prices was due chiefly to small current and prospective market supplies. Wheat prices were higher as a result of reduced crop prospects and poorer quality of spring wheat caused by damage from heat and black stem rust. Prices of beef cattle, lambs, veal, chickens, and potatoes also advanced during the past month.

PRICES RECEIVED BY ILLINOIS FARMERS, AND PRICES PAID FOR COMMODITIES BOUGHT (1921 - 1929 = 100)

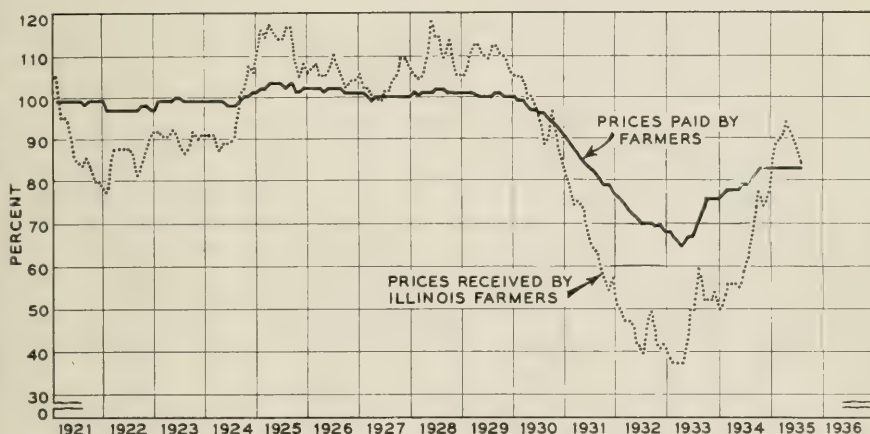


FIG. 1.—PRICES RECEIVED BY ILLINOIS FARMERS AND PRICES PAID
FOR COMMODITIES BOUGHT, 1921-1935

Prices were lower for hay, oats, horses, corn, barley, wool, eggs, milk cows, butterfat, and milk, when corrected for seasonal variation.

Increase in Purchasing Power of Illinois Farmers. During the latter part of 1934 and the early part of 1935, there was a major increase in the purchasing power of cash income of Illinois farmers. From April to June, 1935, the purchasing power of Illinois farmers was 22 percent higher than for the same period a year ago, in spite of shrinkage in volume of commodities marketed. The principal factors causing this increase in purchasing power were:

(1) A major increase in farm prices resulting in large part from the reduction in supplies caused by the 1934 drouth. (Fig. 1). Rental and benefit pay-

ments were not included. (2) Prices paid by farmers for commodities bought increased much less than prices received by farmers. (3) An upward trend in purchasing power of consumers.

Prices paid by farmers for what they buy fluctuate much less than prices received for what they sell. Thus from 1921 to 1929 prices paid by farmers remained relatively stable. Even in the depression years of 1930 to 1933, these prices declined only 35 percent while farm prices declined to about one-third of those of 1929. In contrast, prices received by Illinois farmers fluctuated widely during this period as follows:

(1) Prices of farm products declined sharply from 1920 to 1922 following the loss of export demand after the World War. (2) A slight rise in prices of farm products took place in 1922 and 1923, followed by a sharp increase in the latter part of 1924 and 1925. Increased prices in 1924 and 1925 were the direct result of increased export demand following crop failures in foreign countries in 1924. (3) The decrease in prices from 1925 to 1927 can be attributed principally to a decline in exports from the high level of 1925. The rate of this decline however, was undoubtedly reduced as a result of increasing purchasing power of consumers in the United States. (4) The relatively high level of farm prices prevailing in 1928 and 1929 was primarily the result of greatly increased purchasing power of consumers in this country. (5) The marked decline in Illinois farm prices from 1930 to 1933 was principally the result of the drastic reduction of business activity and consumer purchasing power in the United States and in countries purchasing exports from this country.

TABLE 1.—DATA ON THE WHEAT SITUATION

Year	Acreage Harvested Year first Named (Million a.)	Production Year first Named (Million bu.)	Carryover—July 1		Exports from U.S. (Milli on bu.)	Imports into U.S. (Milli on bu.)	Average price per bu. ³	
			U.S. (Milli on bu.)	World (Milli on bu.)			No. 2 hard winter Chicago	Average all parcels Liverpool
1924-25...	52	840	144	315 ¹	261	6	\$1.39	\$1.81
1925-26...	52	669	115	...	108	16	1.61	1.76
1926-27...	57	834	105	...	219	13	1.40	1.63
1927-28...	60	875	122	389 ²	206	16	1.38	1.52
1928-29...	59	913	124	422	164	21	1.17	1.28
1929-30...	63	822	247	617	153	13	1.30	1.29
1930-31...	63	890	303	583	131	19	.84	.80
1931-32...	57	932	326	668	136	13	.53	.59
1932-33...	57	746	385	696	41	9	.53	.54
1933-34...	48	529	393	789	37	17	.94	.68
1934-35...	42	497	289	752	22 ⁴	17 ⁴	1.05 ⁵	.92 ⁴
1935-36...	52 ⁴	608 ⁴	152 ⁴	520 ⁴	...	..	...	...

¹1921-1924 average. ²1925-1929 average. ³Crop year beginning in July. ⁴Preliminary. ⁵When on export basis Chicago price is at least ten cents under Liverpool.

General Business Conditions. Changes in the purchasing power of farm income fluctuate closely with changes in industrial production. Consequently present indications of underlying strength in our business situation are favorable to farmers. The best indication of business recovery is the fact that for the first time out of four periods of business improvement since 1932 gains made in the recent upward movement in industrial production have, for most part, been held. The sustained demand for automobiles and the high output of iron and steel have been the strongest influences in sustaining business activity. Automobile production for July, 1935, was 22 percent higher than in July, 1934, while production of iron and steel was 43 percent higher than a year ago.

The Wheat Situation. With wheat-seeding time close at hand farmers are interested in the outlook for the crop. The July 1 carryover from the old crop was 152 million bushels; this was much below the annual carryover for the years 1929-1934, but a little more than that for the years 1920-1928. The 1935 production based on August 1 condition is indicated to be 608 million bushels or somewhat below the normal amount of 625 million bushels for domestic use. The 1934 and 1933 crops were extremely short, amounting to 529 million and 497 million bushels respectively. This is therefore the third consecutive year in which production has been less than normal consumption. The result has been a marked reduction in stocks carried over, and this reduction will continue for the coming year, with an expected carryover of 135 million bushels on July 1, 1936, if there are no net imports.

The low production of the past three years has been due largely to low yields and heavy abandonment, since the area seeded was only 3 percent under that of 1930-1932, but the production in bushels was 36 percent less. As a result of production on a domestic rather than an export basis, prices during 1934-1935 have been 20 to 30 cents per bushel higher than might have been expected on an export basis.

Prior to 1933 exports of United States wheat were important, but since that time have been negligible. There is normally some export and import movement to supply deficits of particular kinds of wheat and to market wheat of certain regions such as the Pacific Northwest, but for the present, United States has been displaced as a major exporter of wheat.

For the 1936 crop, contract signers may plant 95 percent of their base acreage, or 5 percent more than for the 1935 crop and 10 percent more than for the 1934 crop. With some increase in acreage and normal yields, production in 1936 would provide some export surplus above domestic requirements.

Condition of Corn Crop. The condition of the corn crop on August 1 was only slightly below that of the ten-year average, 1923-1932 both for Illinois and for the United States. This represented a considerable gain during July. Since August 1 conditions in Illinois have been less favorable because of cool weather and on account of the lateness of the crop a considerable amount of soft corn appears probable. Estimated production for August 1 for the United States was 2,272 million bushels or 89 percent of the five-year average, 1928-1932; and for Illinois 262 million bushels or 79 percent of the five-year average.

Cattle on Feed. Numbers of cattle on feed August 1 in the corn-belt states were the smallest in many years, and 28.5 percent less than a year earlier. The decrease was largely west of the Mississippi River.

Numbers of cattle on feed August 1 by states expressed in percentage of numbers a year ago were reported by the United States Department of Agriculture as follows: Ohio, 110; Indiana, 112; Illinois, 93; Michigan, 95; Wisconsin, 95; Minnesota, 80; Iowa, 70; Missouri, 55; South Dakota, 80; Nebraska, 50, and Kansas, 55. The weighted average of numbers of cattle on feed for the corn belt was 71.5.

Reports from feeders point to prospective purchases during the remainder of the year of considerably more stocker and feeder cattle than last year. The greatest indicated demand was from western corn-belt states, where drouth severely reduced feeding operations in 1934.

Original data for Tables A and B were obtained from the following sources: (1) Bureau of Agricultural Economics, U. S. D. A.; (2) Illinois Crop Reporting Service, Illinois State Department of Agriculture, and U. S. Department of Agriculture, cooperating; (3) Monthly data include an average of current month with eleven preceding months; (4) Federal Reserve Board; (5) National Industrial Conference Board. For explanations of computations, see Number 2, July, 1935.

TABLE A.—INDEXES OF BUSINESS CONDITIONS, 1921-1929 = 100

	Whole-sale prices of all commodities (U. S.) ¹	Farm prices		Cash income to Illinois farmers		Prices paid by farmers for commodities bought (U. S.) ¹	Purchasing power of income to Illinois farmers	Factory payrolls in the United States ⁴	Cost of living in the United States ⁵	Purchasing power of factory payrolls
		Illinois ³	United States ¹	Millions ¹	Indexes ³					
1929.....	97	109	103	\$560.2	108	100	108	112	99	113
1930.....	88	95	89	451.8	88	96	92	90	95	95
1931.....	74	65	61	315.3	61	82	74	68	86	68
1932.....	66	44	46	228.7	44	71	62	48	77	62
1933.....	67	47	49	276.7	54	70	76	49	74	67
1934.....	76	64	64	321.5	62	80	78	64	78	82
July, 1934....	77	63	62	32.4	53	80	66	65	78	83
Mar., 1935....	80	91	77	27.0	68	83	82	71	82	87
Apr., 1935....	82	94	80	34.3	70	83	84	72	83	88
May, 1935....	82	91	77	33.5	72	83	87	70	82	85
June, 1935....	82	88	74	26.8	74	83	89	69	82	84
July, 1935....	81	89	72	....	..	82	..	70	82	85

TABLE B.—PRICES AND PRICE INDEXES OF ILLINOIS FARM PRODUCTS

Product	Prices					Indexes: same month 1921-1929 = 100		
	Aug. average		Aug. 1934	July 1935	Aug. 1935	Aug. 1934	July 1935	Aug. 1935
	1910-14	1921-29						
Corn, bu.....	.66	.83	.68	.79	.78	82	98	94
Oats, bu.....	.36	.36	.43	.29	.24	119	74	67
Wheat, bu.....	.87	1.16	.93	.74	.83	80	63	72
Barley, bu.....	.60	.62	.73	.42	.38	118	65	61
Hogs, cwt.....	7.84	10.00	4.90	9.10	11.00	49	94	110
Beef cattle, cwt..	6.14	8.13	5.30	7.90	8.50	65	99	105
Lambs, cwt.....	5.70	10.68	6.10	7.30	7.50	57	65	70
Milk cows, head	53.00	71.00	32.00	53.00	51.00	45	74	72
Veal calves, cwt..	7.24	10.34	5.00	7.10	8.10	48	71	78
Sheep, cwt.....	3.96	5.58	2.40	2.95	3.20	43	57	57
Horses, head....	152.00	87.00	84.00	107.00	102.00	97	122	117
Butterfat, lb.....	....	.37	.24	.22	.22	65	61	60
Milk, cwt.....	1.43	2.26	1.50	1.35	1.35	66	62	60
Eggs, doz.....	.16	.25	.15	.20	.21	61	87	85
Chickens, lb.....	.12	.21	.12	.14	.15	56	64	70
Wool, lb.....	.19	.33	.22	.21	.20	67	63	61
Apples, bu.....	.74	1.27	.95	.60	.70	75	37	55
Hay, ton.....	13.78	12.30	13.10	9.70	7.90	106	73	64
Potatoes, bu.....	.99	1.36	1.00	.70	.65	74	43	48
Illinois index of farm prices.....	69	84	89

¹⁻⁵For sources of data in tables see previous page.

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Department of Agricultural Economics, College of Agriculture and
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Urbana

October, 1935

Number 5

Illinois Conditions. The growing season for much of Illinois ended with September. The warm weather during that month pushed a large proportion of the corn and soybeans beyond the danger point. Harvesting of these crops will be advanced by the killing frosts which were widespread during the first days of October. Combining of soybeans is already underway in central Illinois, but yields are apparently falling below those of recent years in most areas of the

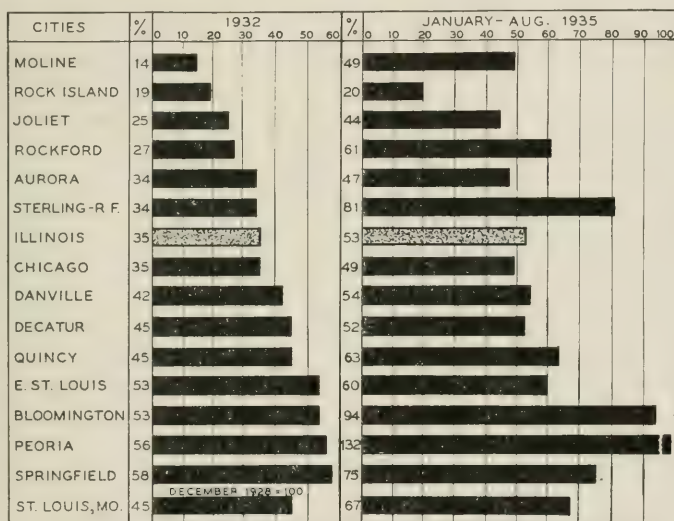


FIG. 1.—FACTORY PAYROLLS IN SPECIFIC ILLINOIS MARKETS (DEC. 1928 = 100)

(Data obtained thru the courtesy of the Illinois Department of Labor)

state. Prices of farm products have generally held stable with little change up to September 15, when normal seasonal variations are taken into account, but with some indications of strength since that date.

General Business Conditions. General business conditions in the United States have been favorable in the summer months of 1935. Industrial production from May to August, 1935, was 8.6 percent higher than a year ago, and nearly equal to the peak reached in 1933. The most favorable factors in this situation are (1) prospects for continued strength in the automobile industry; (2) increased building activity even in the privately financed field; and (3) continued improvement in the machine tools industry and in the farm machinery business.

Changes in Factory Payrolls for Specific Illinois Markets. The major upward movement in factory payrolls which took place in the United States from

1933 to 1935 has been evidenced also in Illinois and in specific Illinois markets. Payrolls in the state and in each of these markets have materially increased since 1932 (Fig. 1). The index of factory payrolls in Illinois increased from 35 in 1932 to an average of 53 for the first eight months of 1935, or a net increase of 51 percent (Dec. 1928 = 100).

In six cities, Moline, Sterling-Rock Falls, Peoria, Rockford, Joliet, and Bloomington, factory payrolls increased faster than those for the state as a whole. The greatest percentage increase occurred in Moline, payrolls for the first eight months of 1935 averaging over three times those for 1932. This large percentage increase was due primarily to the fact that in 1932 payrolls in Moline were the lowest in the state. The low condition of business activity in that city in 1932 was caused primarily by loss in sales of agricultural implements. Likewise, the recent improvement has been due principally to increased purchases of farm machinery. In normal times one out of thirty factory employees in Illinois are employed in this industry. A major part of the farm machinery manufactured in Illinois is sold in other states.

Factory payrolls in Peoria are the highest of any of the Illinois markets and also are higher than those in any other city in the United States for which payroll data are generally available. The rapid increase in business activity in Peoria during 1933 and the early part of 1934 was due principally to the expansion of the beverage industries. More recently, during the latter part of 1934 and in 1935 there has been a considerable increase in the production of tractors, principally for farm use.

Chicago payrolls increased from an index of 35 in 1932 to an index of 49 in the first eight months of 1935. During this same period factory payrolls in St. Louis increased from an index of 45 to 67. Payroll conditions have been better in St. Louis than in Chicago during the whole depression period, many of its industries being able to continue operation on a more nearly normal basis.

In August 1935, indexes of payrolls for individual markets were as follows: Peoria, 146; Bloomington, 108; Sterling-Rock Falls, 86; Springfield, 81; Quincy, 72; St. Louis, 70; Rockford, 67; East St. Louis, 62; Moline, 60; Decatur, 50; Danville, 49; Chicago, 48; Joliet, 47; Aurora, 43; and Rock Island, 25.

R. W. BARTLETT

What About Soybean Prices This Fall? A great many factors influence the price of soybeans. These factors may be classified under three headings: (1) the demand for soybeans; (2) the supply of soybeans; and (3) the monetary situation and general price-level. The last pertains to general demand conditions, but at the present time the monetary situation can be disregarded in considering factors likely to cause changes in soybean prices during the next few months. Altho it is probable that the full effect of the devaluation of the dollar has not yet permeated thru all parts of the price structure, we are fairly safe in assuming that so far as soybeans are concerned the major portion of this influence took place in 1933 and 1934. In a recent study of soybean prices, in order to simplify the analysis, five factors have been used to represent the influence of all factors. These five factors are: (1) the estimated production of soybeans; (2) the estimated production of feed and oil producing crops, represented by corn; (3) the estimated demand for soybean oil, represented by business activity in the United States, measured in terms of the weekly earnings of New York factory workers; (4) the estimated demand for soybean oil meal, represented by the number of hogs in the United States; and (5) the export demand. The export demand becomes a factor of importance, only when we have an exceedingly large crop of soybeans in the United States.

Over-simplification is dangerous, because identical combinations of conditions are not likely to occur year after year, and the influence of any factor may

cease to be fairly represented by some other factor. If we wished to include practically all of the factors affecting soybean prices, we should have to include: the supply of soybeans harvested; the quality of the beans harvested; the demand for soybean oil, both in paints and plastics, and as edible oil; the probable competition from linseed oil and cottonseed oil, corn oil, and butter; the demand for soybean meal, which might be represented by a number of the various classes of livestock that eat soybean meal and the competing feedstuffs; the quantity of competing feedstuffs, such as cottonseed meal, wheat milling by-products, tankage, and linseed oil meal, and also the quantity of legume hays that compete with soybean hay. To measure the demand for soybean oil in paint, we should have to note the changes in building activity and general business activity. The amount used for edible oils depends very largely upon the price of competing fats and oils, which in turn depends upon the quantity of these competing products produced. The probable export situation depends, not only upon competition from Manchuria in supplying the export market, but also the demand from importing countries. This demand is related to political and economic conditions which are hard to measure. The possibility of countries importing soybean products from us depends somewhat upon their ability to export their own products. Finally, monetary factors played an important role in connection with the determination of prices, both in this country and a number of other countries during the last three years.

With this array of factors that need consideration, it should not be expected, therefore, that the five factors used should be relied upon year after year to represent all the other factors named. However, during the period 1925-1934 these factors, because of their own influence and relation to other factors, appear to account very well for year to year fluctuations in soybean prices.

The Supply of Soybeans. The supply of shelled soybeans in the United States increased rather gradually between 1925-28 from 5.13 million bushels to 8.82 million bushels. It will be recalled that a contract price was established in Illinois in 1928 and again in 1929. The production of shelled beans increased between 25 and 30 percent from 1928 to 1929, remained about the same in 1930, and increased another 30 percent from 1930 to 1931 to approximately 15.5 million bushels. There was some falling off in production in 1932 and 1933 but as a result of the drouth and chinch bugs which caused soybeans to be substituted for other crops production in 1934 reached a new high point of 17.75 million bushels. The September 1 estimate for 1935 was almost double the high point reached in 1934; namely, 33.5 million bushels; present indications (October 9) point to a downward revision of this figure. The high point in Illinois farm prices of soybeans as of December 15 for this period was in 1925 at \$1.77 per bushel. There was a downward tendency in prices as production increased, until the low price was reached in 1931 at 35 cents per bushel. In spite of some reduction in the quantity of production in 1932, prices recovered only three cents because of the serious depression then existent. By December, 1933, however, the farm price of soybeans in Illinois had recovered to 66 cents a bushel and in 1934 to \$1.05 per bushel, in spite of the marked increase in production. Altho there was no constant relationship between changes in the supply of soybeans and changes in the price received by Illinois farmers, yet over the period studied there seemed to be some relationship. On the average, an increase of a million bushels in the production of soybeans in the United States was associated with a decrease of about ten cents per bushel, on the basis of the old dollar, and with the new dollar this would be about 17 or 18 cents per bushel.

A word of caution is necessary at this point and the need for it is emphasized by the abnormally large production of soybeans indicated for 1935. Regardless of the quantity of production of beans, the upper limit of prices is set

by the ability of foreign countries to ship beans into the United States and pay our tariff. Likewise, the lower limit of prices in the United States is set by our ability to export beans. This will affect the relationship between supply and price both at the upper and lower limits of production. Then again, when a new product comes on the market in increasing quantities, such as is happening with soybeans at the present time, new uses are found for these products, new processors enter the market, and the relationship between supply and price is quite likely to change considerably from year to year.

The supply of soybeans is not definitely determined, of course, until after harvest. Altho the most recent estimate of the U. S. Department of Agriculture is in excess of 33 million bushels for the current year, some observers think this may be too high and cite the rank growth of stems and foliage with the corresponding reduced setting of beans, and excessive amount of weeds as reasons for estimating a lower production. Under any circumstances, however, the production promises to be abnormally large compared to previous years.

The Demand for Soybeans. The demand for soybeans might be represented by anyone of a number of indexes. In this study the weekly earnings of New York factory workers, averaged for the year, were used.

In studying the correlation between the farm price and the production of soybeans a number of variations were noted from the general tendency. For example, the prices in 1929 and 1934 were far higher than the supply would indicate they should be. The opposite was true in 1932 and 1933. During other years there was some deviation but it was not excessive. By correlating the deviations from the price supply relationship with the index of weekly earnings of New York factory workers, the estimated price more nearly approached the actual price. It appeared then that the deviations in supply, taken in combination with the deviations in the demand situation, as reflected by the earnings of factory workers, pretty well accounted for all the fluctuation in price, except for the year 1934. The correlation was not perfect for the other years: 1929, 1930, and 1925 being too high, and 1927 particularly being too low, but the year 1934 was the only one that was far out of line.

Supplies of Competing Products. The prices of farm products in 1934 were influenced by two unusual circumstances, one was the devaluation of the dollar and the other was the extreme drouth and in this particular area severe damage to corn and other crops by chinch bugs. Altho the production of soybeans was in excess of 17 million bushels and considerably in excess of the 1933 or previous production, the production of corn and all other feedstuffs and oil bearing seeds was only a fraction of what it had been in previous years. Competition from cottonseed oil, linseed oil, butter, mill feed, tankage, and hay was greatly reduced in 1934. Soybean prices benefited from this reduction in competition from other products.

The differences between actual prices and computed prices after taking into consideration the supply of soybeans and the demand represented by purchasing power of certain classes of consumers were then correlated with the production of corn in the United States. The farm prices of soybeans in Illinois were thereby accounted for about as satisfactorily as could be expected from such an oversimplified method.

The Monetary Situation. The close correlation which was found between the farm price of soybeans, the volume of soybean production, the weekly payrolls of factory workers in New York, and the production of corn took into consideration the devaluation of the dollar in 1934. The depreciation of the exchange value of the dollar in 1933 and actual devaluation in 1934 had the effect of raising prices of all commodities, and especially those of farm products and other raw materials. It is difficult to tell how much of the increased price was

accounted for by this fact. It is doubtful that the devaluation alone could have accounted for the almost doubling of price from 1932 to 1933 and almost tripling of price from 1932 to 1934. Export and import prices could not have been affected in excess of 69 percent, because of dollar devaluation. Because of a rather uniform margin between export prices and farm prices, however, the farm price might increase considerably more than 69 percent. Regardless of the extent of the price rise caused by this factor, no great direct increase in price can be expected in the near future as a result of dollar devaluation. The indirect effect may be considerable, however, because of piling up of excess reserves in banks, which may be loaned out to business to increase business activity and hence affect the demand for farm products.

The Present Outlook. Unless industry has been able to work out new uses for soybean products, or the demand for soybean oil has materially increased in excess of the increases in business activity in general, soybean prices this fall may be determined by the price we can obtain in export markets. At the present time it is difficult to actually forecast what foreign countries will pay for soybeans in December, 1935. It will depend not only upon business conditions in Great Britain and Germany but also upon political and economic developments as they affect the foreign exchange and the foreign trade situation in general. The price they will pay for soybeans will depend also upon the supply of soybeans available from Manchuria. If the December, 1934 situation were used as a guide the following may be pertinent. The United States Department of Agriculture reported that a foreign importing company quoted an average price of soybeans on the Continent and in the United Kingdom of about 85 cents per bushel. The Illinois Agricultural Association reports an export transportation cost from Decatur to New York of 34 cents per hundred or in excess of 20 cents per bushel. To this must be added about 9 cents per bushel ocean freight. Some reduction in transportation rate may be possible by routing the beans from Decatur to New Orleans or Mobile. Deducting 29-cent transportation charges from 85-cent list price on the Continent would have left 56 cents to pay the farmer and all costs of handling, except transportation. England has been enjoying a boom in business activity which should help maintain their demand for soybean oil. It is impossible at this time to estimate what influence the present hostilities between Italy and Ethiopia might have upon the prices of soybean oil and soybeans.

Conclusions. The supply and demand situation has changed materially since December 1934. Present indications are that the supply of shelled beans will be almost double the supply last year. Likewise, the supply of products with which soybean meal and soybean oil compete is also approximately up to normal and will not contribute much support to soybean prices this winter. The domestic demand for soybean oil for paints and other industrial uses should increase, inasmuch as business activity and particularly building activity has increased over 1934. On the other hand, the demand for soybean oil for edible purposes will decrease because of competition from cottonseed oil, corn oil, butter, and other edible fats and oils. Foreign demand seems to be holding up fairly well and before the year is out we may find it convenient to ship considerable quantities of soybeans and soybean oil to Europe.

G. L. JORDAN

Labor, Horse, and Machinery Expenses. Labor, horse, and machinery expenses were slightly higher in 1934 than in 1933 on a group of 1,170 central Illinois accounting farms. Of this group 306 used horses and no tractor, 661 used the standard type of tractor, and 203 used tractors for corn cultivation or general-purpose tractors.

The average amount of these items a crop acre in 1933 in operating the standard tractor farms were as follows: expenses for horses, \$1.19; labor, \$2.17; and machinery, \$5.50, making a total expense of \$8.86 a crop acre. In 1934, comparable expenses were \$1.52 for horses, \$2.30 for labor, \$5.61 for machinery, and a total of \$9.43.

The increase in expenses for horses in 1934 was caused by higher feed prices, especially in the latter part of the year. On the other hand depreciation was less than usual because of an increase in price of horses. In all but three of the forty areas of the state for which farm accounting summaries were prepared, inventories of horses registered a gain during 1934.

An increase in horse costs was shown also by cost records kept on Champaign and Piatt county farms. In 1933, the total cost of keeping a horse was \$55, and since each horse averaged 705 hours of work, the hourly cost was 6.6 cents. In 1934, the total cost increased to \$69, the amount of use was reduced to 606 hours, and the hourly cost was 9.6 cents.

TABLE 1. COMPARISON OF EXPENSES FOR LABOR, HORSES, AND MACHINERY PER CROP ACRE ON FARMS OF DIFFERENT SIZES AND OPERATED WITH DIFFERENT TYPES OF POWER, CENTRAL ILLINOIS ACCOUNTING FARMS, 1930-1934
(Total of 6,390 records)

Crop acres per farm	Horse farms	Standard tractor farms	General-purpose tractor farms
40-79.....	\$16.66	\$16.62	\$17.55
80-119.....	12.17	12.73	12.92
120-159.....	10.04	10.83	10.59
160-199.....	8.90	9.49	9.07
200-239.....	8.40	8.63	8.44
240-279.....	6.85	8.00	8.01
280-319.....	6.78	7.57	6.85
320 and over.....	5.90	7.43	6.76
Average.....	9.46	10.16	10.02

Whether farms are operated with horses only, with standard-type tractors or general-purpose tractors, the combined expenses for labor, horses, and machinery reduce rapidly as the size of the crop area increases. Two major factors are involved in this trend: (1) There is more work to be done per acre on the small farms since they have much more livestock per acre and expenses for labor, horses, and machinery correlate closely with the amount of livestock. (2) The larger farms permit greater operating efficiency because of larger fields and provide an easier adjustment of power than do small farms.

For the average of the five years, 1930-1934, expenses for labor, horses, and machinery were slightly lower on horse farms than on tractor operated farms (Table 1). It must be recognized, however, that during three of the five years feed costs were much below normal. It is true also that gross incomes per acre were higher on the tractor farms than on the horse farms.

That farmers have attempted to adapt their power set-up to the individual farm needs is indicated by a comparison of the size of farm for the three power groups. The horse farms averaged 186 acres with 127 acres in crops, the standard tractor farms 248 acres with 186 acres in crops, and the general-purpose farms 294 acres with a crop area of 226 acres. The cultivating tractor has its best use on larger farms with a high percentage of corn and soybeans.

Records of individual farms similar in size, in kind of power, and in amount of livestock, indicate a wide range in expenses because of varying efficiency of

the operators. Many farmers get good production from their farms but have low net incomes because of high labor, horse, and machinery expenses.

P. E. JOHNSTON

Decline in Value of Agricultural Exports Continued. Exports of agricultural products from the United States during the last fiscal year ending June 30, 1935, continued the downward trend of recent years. Agricultural exports totaled \$669,000,000 in 1934-35, or only 34 percent of the average value of \$1,948,000,000 for the five-year period from July 1, 1924 to June 30, 1929. When compared with the previous year, exports in 1934-35 were 15 percent less in value and 35 percent less in volume, the difference being due to rising prices. United States exports of all kinds have declined markedly altho non-agricultural products have been affected somewhat less than agricultural products, particularly during the last year. During the five-year period, 1924-29, agricultural products made up 40 percent of the value of all exports; by 1933-34 this proportion had shrunk to 39

TABLE 2.—PROPORTION OF VALUE OF AGRICULTURAL EXPORTS REPRESENTED BY SELECTED COMMODITY GROUPS¹

Commodity groups	Percent of total for year ended June 30		
	1924-29	1933-34	1934-35
Cotton, raw.....	46.2	55.7	48.8
Tobacco.....	7.4	12.7	18.0
Fruits and fruit preparations.....	6.0	9.9	10.6
Animals and animal products.....	14.2	10.6	10.4
Grains and grain products.....	20.0	5.1	4.8
Miscellaneous vegetable products.....	6.2	6.0	7.4
	100.0	100.0	100.0

¹From Foreign Crops and Markets, Vol. 31, No. 14, p, 473.

percent, and during 1934-35 to 32 percent. Non-agricultural products increased while drouth and restriction were further reducing farm exports.

That the character of exports is changing is shown by the proportions of the total which certain products represent in comparison with earlier years (Table 2).

Cotton has maintained its lead over other products, altho in total value cotton exports have declined from an average of \$901 millions for the period 1924-29 to \$327 millions in 1934-35. Tobacco and fruits have increased greatly in their proportions of the total, altho total value of these exports have been reduced. Tobacco shipments amounted to \$144 millions in the five-year period and \$121 millions last year, while fruit shipments for the same periods were \$116 millions and \$71 millions respectively. Livestock and grain products have been sharply reduced, both in proportion and in value. Livestock and livestock products exported annually 1924-29 were worth \$278 millions and \$69 millions in 1934-35. Reductions were heaviest in oils and animal fats, meats, and dairy products. Grains and grain products dropped most from a value of \$377 millions in 1924-29 to \$29 millions in 1934-35. Wheat and wheat flour normally account for about three-fourths of this group. Last year wheat exports were one percent of the average of the five-year period and wheat flour 20 percent.

R. C. Ross

Original data for Tables A and B were obtained from the following sources: (1) Bureau of Agricultural Economics, U. S. D. A.; (2) Illinois Crop Reporting Service, Illinois State Department of Agriculture, and U. S. Department of Agriculture, cooperating; (3) Monthly data include an average of current month with eleven preceding months; (4) Federal Reserve Board; (5) National Industrial Conference Board. For explanations of computations, see Number 2, July, 1935.

TABLE A.—INDEXES OF BUSINESS CONDITIONS, 1921-1929 = 100

	Whole-sale prices of all commodities (U. S.) ¹	Farm prices		Cash income to Illinois farmers		Prices paid by farmers for commodities bought (U. S.) ¹	Purchasing power of income to Illinois farmers	Factory payrolls in the United States ⁴	Cost of living in the United States ⁵	Purchasing power of factory payrolls
		Illinois ²	United States ³	Millions ¹	Indexes ³					
1929.....	97	109	103	\$560.2	108	100	108	112	99	113
1930.....	88	95	89	451.8	88	96	92	90	95	95
1931.....	74	65	61	315.3	61	82	74	68	86	68
1932.....	66	44	46	228.7	44	71	62	48	77	62
1933.....	67	47	49	276.7	54	70	76	49	74	67
1934.....	76	64	64	321.5	62	80	78	64	78	82
August, 1934.....	78	69	68	41.7	56	82	68	64	79	81
May, 1935.....	82	91	77	33.5	72	83	87	70	82	85
June, 1935.....	82	88	74	26.8	74	83	89	69	82	84
July, 1935.....	81	89	72	28.2	73	82	89	70	82	85
August, 1935.....	82	88	75	.....	..	82	..	72	82	88

TABLE B.—PRICES AND PRICE INDEXES OF ILLINOIS FARM PRODUCTS

Product	Prices					Indexes: same month 1921-1929 = 100		
	Sept. average		Sept. 1934	Aug. 1935	Sept. 1935	Sept. 1934	Aug. 1935	Sept. 1935
	1910-14	1921-29						
Corn, bu.....	.66	.81	.74	.78	.75	91	94	93
Oats, bu.....	.36	.36	.48	.24	.24	133	67	67
Wheat, bu.....	.90	1.16	.95	.83	.88	82	72	76
Barley, bu.....	.61	.60	.73	.38	.42	147	61	70
Hogs, cwt.....	7.98	10.02	6.30	11.00	11.00	63	110	110
Beef cattle, cwt..	6.18	8.22	5.90	8.50	8.30	72	105	101
Lambs, cwt.....	5.60	10.79	5.90	7.50	8.00	55	70	74
Milk cows, head..	54.00	71.00	37.00	51.00	52.00	52	72	73
Veal calves, cwt..	7.54	10.99	6.40	8.10	8.60	58	78	78
Sheep, cwt.....	4.04	5.89	2.40	3.20	3.40	41	57	58
Horses, head.....	150.00	85.00	89.00	102.00	102.00	105	117	120
Butterfat, lb.....	.....	.39	.23	.22	.24	59	60	61
Milk, cwt.....	1.49	2.26	1.50	1.40	1.45	66	62	64
Eggs, doz.....	.19	.30	.20	.21	.25	67	85	84
Chickens, lb.....	.12	.21	.13	.15	.16	62	70	76
Wool, lb.....	.19	.33	.21	.20	.21	63	61	63
Apples, bu.....	.71	1.24	1.10	.70	.60	89	55	48
Hay, ton.....	13.90	12.39	13.80	7.90	7.50	111	64	60
Potatoes, bu.....	.88	1.26	1.00	.65	.65	79	48	52
Illinois index of farm prices.....	77	89	88

¹⁻⁵For sources of data in tables see previous page.

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FREE Co-operative Agricultural Extension Work.
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ILLINOIS FARM ECONOMICS

Department of Agricultural Economics, College of Agriculture and
Agricultural Experiment Station, in cooperation with the
Agricultural Extension Service, University of Illinois

Urbana

November, 1935

Number 6

General Business Conditions. The purchasing power of factory payrolls has continued its upward advance from June to September (Table A). In September, 1935, factory payrolls would buy 7 percent more than in June, and 22 percent more than in September, 1934. Wholesale prices of all commodities in the United States have remained at about the same level during the past few months. Prospects are favorable for continued improvement in general business conditions.

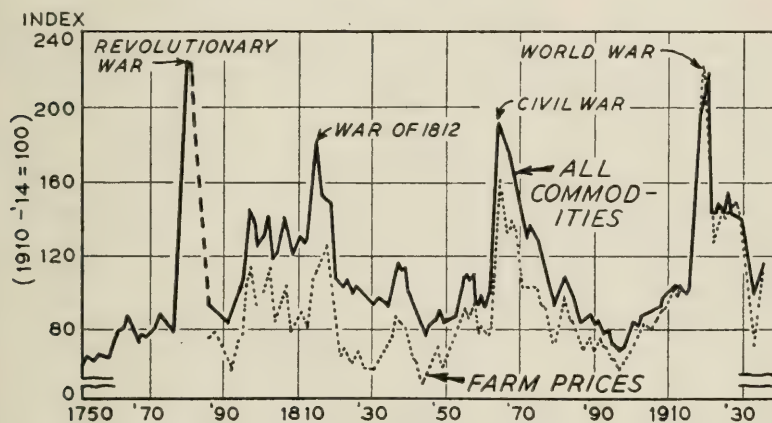


FIG. 1.—INDEXES OF WHOLESALE PRICES OF ALL COMMODITIES AND OF FARM PRODUCTS IN THE UNITED STATES, 1750-1935

(Data from N.Y. (Cornell) Agricultural Experiment Station, Memoir 142 and Farm Economics)

This year, for the first time during the depression period, business activity has successfully resisted the usual decline of midsummer and fall, and so is in a much better position than in earlier years for the expansion which normally occurs near the end of the year. A further encouraging feature is the broader basis of business activity. The durable goods industries, whose products go largely into further production rather than into direct consumption, are showing improvement. Production of automobiles, farm machinery, tools, and household and office equipment is the best in five years, and construction, particularly of residences, has been maintained at a higher seasonal position. At the same time, activity in consumption lines such as clothing, foods and the like is being maintained.

The immediate prospect in the United States is for a continuance of this position with a higher rate of business activity in 1936 than in 1935. The direct effect of such improvement is to increase employment and payrolls and to strengthen the domestic market for farm products, affecting first the demand for

food products such as meats and dairy, fruit and vegetable products, and gradually extending to other products. While conditions in many foreign countries are improving also, the presence of high and widespread trade restrictions prevents the full realization of such improvement in our markets.

Illinois Farm Prices. Increases in Illinois prices of ten farm products in October, 1935 as compared with September were offset by declines in prices of seven items (Table B). This resulted in leaving the combined index at 88 in October, the same as for September. Products whose prices advanced (when corrected for seasonal variation) were: wheat, corn, horses, barley, sheep, wool, lambs, chickens, potatoes, and milk. Prices of eggs, hogs, hay, oats, beef cattle, milk cows and apples declined during the past month. Indexes of prices for butterfat and veal remained the same in October as in September.

The Food Supply for 1935-1936. Supplies of foods available for domestic consumption for the year 1935-1936 are only 1.2 percent below the average for the five-year period before the depression, 1925-1929. These figures are from a report just released by the Bureau of Agricultural Economics, United States Department of Agriculture. Ample food supplies are of general interest, since the total population constitutes the consumer group. Because of restrictions in production of some products under the Agricultural Adjustment Act and the more general reduction caused by the drouth of 1934, some have felt concern as to whether there would be sufficient food supplies.

The greatest shortages in comparison with the predepression period are in livestock products other than dairy products. Supplies of meats (except poultry) are 82 percent of average, poultry 91 percent, eggs 88 percent and lard 89 percent. Dairy products are ample, milk and cheese being 104 percent and butter 111 percent of average. The shortage of lard is offset by other edible fats and oils, the supplies of which are 19 percent above average, and which normally are more than one-fourth greater than the volume of lard.

Of the crop products rice is the only one below average, this shortage amounting to but 3 percent. Wheat, Irish potatoes and sweet potatoes, all carbohydrate foods, have supplies in excess of average by 4, 5, and 13 percent respectively. Beans and peanuts have substantial surpluses of 27 and 21 percent. Fruits in fresh, canned and dried form exceed average amounts by 15 to 42 percent, while supplies of fresh and canned vegetables are a little more than average.

Food supplies available for the current year are slightly in excess of those consumed last year, but 2 percent less than in 1933-1934, although the distribution among the various products varied somewhat each year. Some of these products move in international trade. Any reduction in the current amount of exports or increase in imports would add to the amounts available for domestic consumption while reverse movements would reduce supplies.

Post-War Losses to Farmers Greater Than War-Time Gains. The disruption of world trade which in the past has resulted from major wars has brought unfavorable effects to American farmers. An analysis of these effects is timely in view of the possibility of a more general war growing out of the present conflict between Italy and Ethiopia in Africa.

The underlying cause of the troublesome times which Illinois farmers have experienced during the past 15 years has been the result of maladjustments which had their roots in the World War. In fact, war has been the major cause of the violent changes in prices which have occurred during the past 185 years, as shown by the course of American prices from 1750 to 1935 (Fig. 1). The four sharp peaks of war prices, which occurred during or at the close of the Revolutionary War, the War of 1812, the Civil War, and the World War, emphasize the unduly high prices caused by war conditions and the long periods of falling prices and

depression which followed. With each of these peaks occurred a marked expansion of cultivated farm land, the production from which added to the subsequent distress.

The regular sequence of events, from an economic standpoint, produced by the great wars has been stated as:¹ "(1) commodity price inflation; (2) farm prosperity and farm land speculation; (3) price deflation and short primary post-war depression; (4) a period of city prosperity and widespread speculation; (5) a secondary price deflation and a long, secondary post-war depression.

"Economic developments have followed this specialized type of movement and sequence during and after the great wars, and they have done so since and during the World War."

Farm land speculation in the United States which took place during the World War was evidenced by an increase in values of farm land and buildings in the United States from 34.8 billion dollars in 1910 to 66.3 billion dollars in 1920, an increase of 91 percent. This increase in farm property values was the result of high prices brought about by the marked increase in demand for farm products such as wheat, pork, and beef, by European countries which were at war.

From 1921 to 1929, farm investment values declined in spite of general prosperity and widespread speculation in cities. Values of farm land and buildings, in billions of dollars, declined from 66.3 in 1920 to 49.5 in 1925, and 47.9 in 1930. The underlying cause for these declines was the shrinkage in demand from European countries for our farm products. This period was characterized by an increase in the use of tariffs, quotas, and bounties to encourage domestic production of farm products in European countries.

The depression of 1929 to 1935 has involved nearly all nations. During this period farm property values decreased to a low of 30.4 billion dollars in 1933, a point even lower than that for 1910, and less than half of that in the peak of 1920. Present values (1935) of farm land and buildings in the United States are estimated to be slightly above those for 1910, or a net decrease of about 30 billion dollars from those of 1920.

Facts of special importance to farmers are:

1. The early part of a war period results in high farm prices relative to other commodities for a *short period* which is known as farm prosperity, and which is accompanied by high net farm incomes and farm-land speculation.

2. War prices are followed by relatively *long periods* during which prices of farm products decline to levels relatively lower than those of non-agricultural prices.

3. *Losses to farmers after a war* resulting from low farm prices, an even greater reduction in purchasing power, and shrinkage of farm property values, are *much more than the gains* made during the brief period of war prosperity. This fact stands out clearly to anyone who depended upon farming for a living from 1921 to 1935.

If history can be depended upon as a guide, for a long-time policy it is to the best interest of farmers in the United States to take every reasonable precaution to prevent an overexpansion of farm production in order to profit from a temporary war-time demand in other countries. In this way the heavy losses such as have recently been experienced in the forced adjustment of farm production to a peace-time demand might be avoided.

¹Ayres, Leonard P. *The Chief Cause of This and Other Depressions*. Cleveland Trust Company, 1935, pp. 49-50.

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	Whole-sale prices of all commodities (U. S.) ¹	Farm prices		Cash income to Illinois farmers		Prices paid by farmers for commodities bought (U. S.) ¹	Purchasing power of income to Illinois farmers	Factory payrolls in the United States ⁴	Cost of living in the United States ⁵	Purchasing power of factory payrolls
		Illinois ²	United States ³	Millions ¹	Indexes ³					
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1932	66	44	46	228.7	44	71	62	48	77	62
1933	67	47	49	276.7	54	70	76	49	74	67
1934	76	64	64	321.5	62	80	78	64	78	82
Sept., 1934	79	77	72	35.7	57	82	70	59	80	74
June, 1935	82	88	74	26.8	74	83	89	69	82	84
July, 1935	81	84	72	28.2	73	82	89	70	82	85
Aug., 1935	82	89	75	31.6	71	82	87	72	82	88
Sept., 1935	82	88	75	...	...	80	...	74	82	90

TABLE B.—PRICES AND PRICE INDEXES OF ILLINOIS FARM PRODUCTS

Product	Prices					Indexes: same month 1921-1929 = 100		
	Oct. average		Oct. 1934	Sept. 1935	Oct. 1935	Oct. 1934	Sept. 1935	Oct. 1935
	1910-14	1921-29						
Corn, bu.	\$.61	\$.74	\$.73	\$.75	\$.74	99	93	100
Oats, bu.	.37	.38	.46	.24	.25	121	67	66
Wheat, bu.	.91	1.18	.91	.88	1.01	77	76	86
Barley, bu.	.63	.59	.84	.42	.44	142	70	75
Hogs, cwt.	7.58	9.62	5.30	11.00	10.00	55	110	104
Beef cattle, cwt.	6.06	8.07	5.60	8.30	8.10	69	101	100
Lambs, cwt.	5.64	10.61	5.60	8.00	8.20	53	74	77
Milk cows, head	55.00	72.00	36.00	52.00	52.00	50	73	72
Veal calves, cwt.	7.52	10.92	6.10	8.60	8.50	56	78	78
Sheep, cwt.	3.98	5.69	2.40	3.40	3.55	42	58	62
Horses, head.	149.00	84.00	86.00	102.00	106.00	102	120	126
Butterfat, lb.	...	.41	.23	.24	.25	56	61	61
Milk, cwt.	1.69	2.30	1.55	1.45	1.50	67	64	65
Eggs, doz.	.22	.35	.21	.25	.26	59	84	74
Chickens, lb.	.11	.20	.12	.16	.15	58	76	78
Wool, lb.	.19	.33	.21	.21	.22	64	63	67
Apples, bu.	.71	1.37	1.05	.60	.65	77	48	47
Hay, ton	13.83	12.45	13.90	7.50	7.10	112	60	57
Potatoes, bu.	.78	1.21	.85	.65	.65	71	52	54
Illinois index of farm prices	74	88	88

¹⁻⁴For sources of data in tables see previous page.

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ILLINOIS FARM ECONOMICS

Department of Agricultural Economics, College of Agriculture and Agricultural Experiment Station, in cooperation with the Extension Service in Agriculture and Home Economics, University of Illinois

Urbana

December, 1935

Number 7

Trade Agreement Between the United States and Canada. Total exports of products from the United States to Canada in 1935 of about \$325,000,000 were less than half of those for 1930 and only one-third of those for the peak year of 1929 (Fig. 1). The principal purpose of the reciprocal trade agreement between United States and Canada, signed on November 15, 1935, and to become effective January 1, 1936, is to restore trade between these countries on a basis more nearly comparable to that from 1925 to 1930.

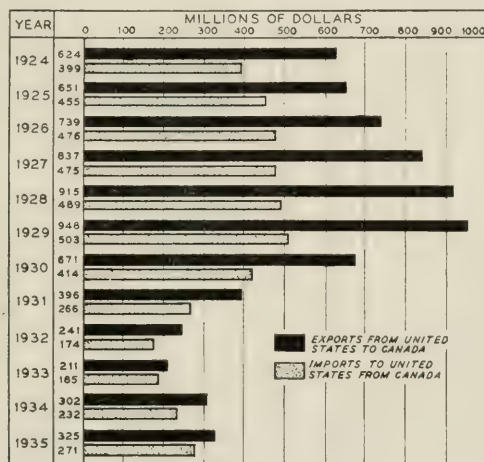


FIG. 1.—TOTAL TRADE OF THE UNITED STATES WITH CANADA, 1924 TO 1935
(Data, including reexport trade, were obtained from Monthly Summary of Foreign Commerce, U. S. Dept. of Commerce)

Concessions made by Canada to the United States for effecting this are:

1. General reductions in duty on agricultural products shipped into Canada, including fresh fruits, vegetables, and wheat. Potatoes were transferred to the free list. Oranges were put on the free list for parts of the year, and guarantees were made that no duties would be placed upon raw cotton.
2. Reductions in duty on machinery, industrial equipment, automobiles and parts, railway cars and parts, electrical apparatus, iron and steel mill products, gasoline lubricating oils and greases, cotton fabrics, and dress furs. Tractors were placed on the free list.
3. Guarantee to the United States of the lowest rate for any non-British country on 767 items and sub-items on the Canadian schedule.

The value of exports from the United States to Canada in 1929-30 for all

items on which duties have been reduced was \$416,100,000. In 1934-35 exports of these items were \$106,000,000, or about one-fourth of those for 1929-30.

4. Guarantee of benefits to commercial travelers and revision promised in the Canadian system of arbitrary valuation as well as legislation for exempting limited purchases of tourists from duty.

Concessions made by the United States to Canada are:

1. Reductions in duty, for fixed quotas, of cattle, calves, dairy cows, cream, certified seed potatoes, lumber, and certain kinds of timber, particularly pulpwood.

2. Reductions in duty on hay, horses, live poultry, cheddar cheese, turnips, apples, maple sugar, certain kinds of fish, and leather goods.

3. Guaranteeing that Canadian exports to us which are now free of duty will be continued on the free list.

4. Guaranteeing to Canada that the existing 10 percent duty on certain feed-stuffs for animals will not be increased.

Imported to

TABLE 1. RECENT CHANGES OF TARIFF RATES ON SPECIFIC PRODUCTS EXPORTED FROM THE UNITED STATES TO CANADA

Product	Unit	Tariff rates		
		1922-1930	1930-1935	After Jan. 1, 1936
1. Apples.....	Bu.	25¢	25¢	15¢
2. Beef cattle.....	Lb.	2¢	3¢	2¢
	(700 lbs. and over)			
3. Calves.....	Lb.	11½¢	21½¢	1½¢
	(175 lbs. and under)			
4. Cheddar cheese.....	Lb.	5¢ ¹	7¢ ²	5¢ ¹
5. Chickens (live).....	Lb.	3¢	8¢	4¢
6. Cream.....	Gal.	30¢	56.6¢	35¢
7. Dairy cows.....	Lb.	2¢	3¢	1½¢
8. Hay.....	Ton	\$4 ³	\$5 ⁴	\$3 ⁴
9. Horses.....	Head	\$30	\$30	\$20
	(Values under \$150)			
10. Potatoes (seed).....	100 lbs.	50¢	75¢	45¢ and 60¢ ⁵

¹Not less than 25% ad valorem; ²not less than 35% ad valorem; ³long ton; ⁴short ton; ⁵45¢, March 1 to Nov. 30; 60¢, Dec. 1 thru Feb.

In reviewing the essential points included in the trade agreement, the question most frequently asked by American farmers is, "What is the probable effect on prices of important farm products on which tariffs from Canada to the United States have been reduced?"

An analysis of the situation pertaining to farm products on which tariff rates were reduced, indicates that not only are lower prices to American farmers on these products unlikely, as a result of this reduction, but rather, there are strong reasons for believing that within the next two or three years prices of these and other farm products will be materially increased as a result of increased incomes of factory workers and those engaged in foreign trade if expected increases in trade between the United States and Canada take place. The new rates indicate a return to about the level of the Fordney-McCumber tariff in effect from 1922 to 1930. (Table 1)

The factors which will tend to prevent a lowering of American prices of farm products having lower tariff rates are:

First, maximum quotas permitted at the *reduced rates* for items such as beef cattle, calves, dairy cows, and cream are *so small* in relation to total domestic production as to be almost negligible in affecting prices.

Thus, the tariff rate on dairy cows was reduced from 3 to 1.5 cents per pound. From 1930 to 1934, the average production of dairy cows in the United States was 4,730,000, annually. The annual quantity permitted to enter from

Canada at reduced rates is 20,000 head, or about two-fifths of one percent of the annual production of dairy cows in this country.

The tariff rate on beef cattle was reduced from 3 to 2 cents per pound for a quantity not to exceed 155,000 head a year from Canada and all other countries. The quota permitted at the reduced rate is about three-fourths of one percent of the cattle slaughtered in the United States in an average year. No reduction of tariff rates was made on cattle weighing from 175 to 700 pounds. Mexican imports weigh less than 700 pounds per head and are still bound by the old rate.

The duty on calves was reduced in the Canadian agreement from 2.5 to $1\frac{2}{3}$ cents per pound, but under the fixed quota will apply to only 52,000 head or about one-fourth of 1 percent of the total cattle slaughtered in this country.

Rates on cream from Canada were reduced from 56.6 to 35 cents per gallon. The average volume of whole milk reduced to a cream equivalent from 1930-1934 was 1,235 million gallons annually. The maximum quota of cream of 1.5 million gallons annually permitted at the reduced rates was thus about one-eighth of 1 percent of the average production in the United States.

Second, tariff rates which go into effect January 1, 1936, on items such as apples, cheddar cheese, live chickens, hay, horses, and seed potatoes, *are sufficiently high* in relation to the usual prices of these products as to effectively *prohibit* large amounts of imports to the United States. Reduced tariff rates which will apply to these products are: apples, 15 cents per bushel; cheddar cheese, 5 cents per pound; live chickens, 4 cents per pound; hay, \$3.00 per ton; horses, \$20 per head; and seed potatoes, 45 cents per 100 pounds, March 1 to November 30, and 60 cents per 100 pounds from December 1 to the last day of February.

The factors which may be expected to be most influential in increasing prices of American farm products are:

1. Increased incomes to factory workers producing goods for Canada and to those engaged in trade with Canada. In 1933, out of a total of approximately 13,000,000 unemployed, about 3,000,000 were employees formerly engaged in foreign trade, and about 2,300,000 were factory workers. A continued revival of industries and trade in which these men were employed will create better domestic outlets for farm products as well as assist in reducing unemployment.

The principal non-agricultural exports to Canada are iron and steel products. In 1929-30, the total value of these products on which duties have been materially reduced was \$205,000,000. In 1934-35, the value of exports of these same products was only \$47,000,000, or less than one-fourth of that for 1929-30.

The Canadian duty on most classes of agricultural machinery and implements which are included in the iron and steel exports has been reduced from 25 percent to $12\frac{1}{2}$ percent of its market value. In 1929-30, trade in these goods amounted to over \$14,000,000, or about one-tenth of the total value of farm equipment exported. Since Illinois ranks first in the production of agricultural machinery, an increase in exports of these products will increase both payrolls and employment in this state.

2. General reduction in duties on agricultural products shipped into Canada should be influential in restoring our markets for certain kinds of these products. In 1934-35 the value of exports of agricultural products to Canada was 15.2 million dollars, or less than one-third of those for 1929-30, when their value reached a peak of 49.8 million dollars. Vegetables and fresh fruits, including oranges, are expected to benefit most by these reductions.

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TABLE A.—INDEXES OF BUSINESS CONDITIONS, SAME MONTH 1921-1929 = 100

	Whole-sale prices of all commodities (U. S.) ¹	Farm prices		Cash income to Illinois farmers		Prices paid by farmers for commodities bought (U. S.) ¹	Purchasing power of income to Illinois farmers	Factory payrolls in the United States ⁴	Cost of living in the United States ⁵	Purchasing power of factory payrolls
		Illinois ²	United States ³	Millions ¹	Indexes ³					
1929.....	97	100	103	\$560.2	108	100	108	112	99	113
1930.....	88	95	89	451.8	88	96	92	90	95	95
1931.....	74	65	61	315.3	61	82	74	68	86	79
1932.....	66	44	46	228.7	44	71	62	48	77	62
1933.....	67	47	49	276.7	54	70	76	49	74	67
1934.....	76	64	64	321.5	62	80	78	64	78	82
Oct., 1934.....	78	74	71	35.0	60	82	73	61	80	76
July, 1935.....	81	84	72	28.2	73	82	89	70	82	85
Aug., 1935.....	82	89	75	31.6	71	82	87	72	82	88
Sept., 1935.....	82	88	75	.....	.....	80	..	74	82	90
Oct., 1935.....	83	88	76	.....	.....	80	..	75	83	90

TABLE B.—PRICES AND PRICE INDEXES OF ILLINOIS FARM PRODUCTS

Product	Prices					Indexes: same month 1921-1929 = 100		
	Nov. average		Nov. 1934	Oct. 1935	Nov. 1935	Nov. 1934	Oct. 1935	Nov. 1935
	1910-14	1921-29						
Corn, bu.....	\$.54	\$.67	\$.74	\$.74	\$.53	110	100	79
Oats, bu.....	.37	.38	.48	.25	.24	126	66	63
Wheat, bu.....	.91	1.18	.91	1.01	.92	77	86	78
Barley, bu.....	.63	.59	.85	.44	.44	144	75	75
Hogs, cwt.....	6.94	8.69	5.10	10.00	8.80	59	104	101
Beef cattle, cwt.	5.96	7.90	5.20	8.10	7.70	66	100	98
Lambs, cwt.....	5.58	10.62	5.70	8.20	8.70	54	77	82
Milk cows, head	54.00	72.00	38.00	52.00	53.00	53	72	74
Veal calves, cwt..	7.30	10.21	5.70	8.50	8.90	56	78	87
Sheep, cwt.....	3.94	5.60	2.45	3.55	3.70	44	62	66
Horses, head.....	148.00	83.00	87.00	106.00	108.00	105	126	130
Butterfat, lb.....	.....	.43	.26	.25	.29	61	61	68
Milk, cwt.....	1.81	2.34	1.55	1.50	1.55	66	65	66
Eggs, doz.....	.27	.44	.27	.26	.29	61	74	66
Chickens, lb.....	.10	.19	.11	.15	.16	60	78	83
Wool, lb.....	.18	.34	.20	.22	.24	58	67	70
Apples, bu.....	.79	1.50	1.10	.65	.65	73	47	43
Hay, ton.....	13.92	12.91	14.60	7.10	7.40	113	57	57
Potatoes, bu.....	.71	1.26	.65	.65	.70	52	54	56
Illinois index of farm prices.....	.....	.....	.....	.....	.....	76	88	82

¹⁻⁴For sources of data in tables see previous page.

UNIVERSITY OF ILLINOIS
COLLEGE OF AGRICULTURE
URBANA, ILLINOIS

PENALTY FOR PRIVATE USE TO A
PAYMENT OF POSTAGE \$200

H. F. Munford
Director Agricultural Extension

REE Co-operative Agricultural Extension Work
Acts of May 8, and June 30, 1914.

ILLINOIS FARM ECONOMICS

Department of Agricultural Economics, College of Agriculture and Agricultural Experiment Station, in cooperation with the Extension Service in Agriculture and Home Economics, University of Illinois

Urbana January, 1936 Number 8

General Business Conditions and Illinois Farm Prices. Business activity in the United States at the end of 1935 was at the highest level in more than five years. Industrial production in 1935 averaged 13 percent higher than 1934, and was nearly 60 percent above the low point in 1932. Income of factory workers increased from \$5,022,000,000 in the low year of 1932 to \$7,402,000,000 in 1935, a net increase of about \$2,400,000,000, or 48 percent (Table 1).

Farm cash income in the United States including emergency sales, rental and benefit payments, increased from \$4,328,000,000 in 1932 to about \$6,870,000,000 in 1935, a net increase of about \$2,500,000,000, or 58 percent. While farm cash income in 1935 was substantially higher than in 1932, 1933, or 1934, it was lower than would have been expected had there been no drouth in 1934.

TABLE 1.—CHANGES IN FARM CASH INCOME¹ AND FACTORY PAYROLLS IN THE UNITED STATES, 1929-1935.

Year	Farm cash income ²		Factory payrolls ⁴	
	(In millions)	Percent (1924-1929 = 100)	(In millions)	Percent (1924-1929 = 100)
1929.....	\$10,479	104	\$11,621	108
1930.....	8,451	84	9,518	89
1931.....	5,899	59	7,256	67
1932.....	4,328	43	5,022	47
1933.....	5,117	51	5,106	47
1934.....	6,387	63	6,584	61
1935.....	6,870 ³	67	7,402	69

¹Including emergency sales, rental and benefit payments. ²From Agriculture's Share in the National Income, October, 1935. U.S.D.A. ³Estimate. ⁴Data for 1929-32 from Economic Trends Affecting Agriculture, 1933, U.S.D.A.; data for 1933-35 based upon indexes of Federal Reserve Board.

Illinois farm prices of livestock and livestock products were higher in December, 1935 than in December, 1934. Hogs, veal calves, beef cattle, lambs, horses, milk cows, and sheep experienced the greatest increase in prices. In contrast, Illinois farm prices of grain and hay in December, 1935 averaged only about half of those one year ago. During this period corn fell from 88 cents to 48 cents a bushel; barley from 87 cents to 46 cents; oats from 51 cents to 23 cents a bushel; and hay from \$14.80 to \$7.60 a ton. High grain and hay prices in December, 1934 were the result of extremely short supplies following the drouth of 1934. Prices in December, 1935, indicate the greater abundance of these crops in 1935. Wheat prices were about the same at the two dates.

Higher prices for livestock and livestock products were about offset by lower prices for grain and hay, leaving the combined index of Illinois farm prices in December, 1935, at 82, or one point higher than that for December a year ago.

The Agricultural Outlook for 1936

The following brief summary of the outlook for Illinois farm products is reprinted from the annual Agricultural Outlook for Illinois, published recently by the College of Agriculture and from which complete copies may be obtained.

While the Outlook report was prepared prior to the recent adverse decision of the Supreme Court on the A. A. A., this decision is not expected seriously to affect farm prices in the near future. Supplies of farm products are well determined until a new crop is harvested, and marked changes in prices are unlikely until changes occur in supplies. Some commodities which were subject to processing taxes may be expected to advance somewhat because of removal of the tax, while prices of competing products which have not had processing taxes may be expected to decline slightly, so as to equalize prices of competing products.

The Agricultural Outlook for 1936 promises further increases in the demand for farm products. The increased activity indicated for building construction is a very favorable sign. Livestock prices are expected to remain high in relation to grain prices at least until new crops are available. Unemployment, however, is still at a high level and the foreign demand for agricultural products shows but little improvement.

Farm Family Living. The cash income available to farm families will probably be higher in 1936 than for several years. No significant changes in prices of goods for family maintenance are anticipated during the next six months.

Feeds. The present supply of feed grains is sufficient to provide each grain-consuming animal unit with about the same amount as the average during the five-year period 1928-1932. Hay supplies, in comparison with the amount of livestock on hand, are slightly above normal.

Corn. With normal weather conditions in the spring of 1936, a slightly increased corn acreage may be expected. The increase in hog numbers anticipated for 1936 will cause additional demand for this crop.

Oats. The 1935 oat crop was poor in quality, and was 3 percent smaller than the average of the five-year period 1928-1932.

Chinch Bugs. Should the spring of 1936 be dry, serious chinch bug damage may be expected in a large area in central, western, and northwestern Illinois.

Barley. Barley production in the northern three tiers of counties in Illinois may be increased with comparative safety in 1936, tho there is still some danger from chinch bugs.

Wheat. With average yields, wheat prices in 1936 are likely to be lower than those received for the 1935 crop.

Soybeans. Illinois farmers produced for harvest in 1935 more soybeans than had ever before been produced in the entire United States. Despite the largest soybean crop in United States history, prices held firm during the fall months when the crop was being harvested.

Dairy Products. Farm prices of butterfat are higher in relation to prices of feed grain, by-product feeds, and hay than a year ago and will probably continue so thruout 1936. No marked change can be expected in milk cow numbers during the next two years.

Poultry and Eggs. Relatively favorable prices for poultry and eggs and a distinctly favorable egg-feed ratio indicate a favorable outlook for producers of poultry and eggs for the first half of 1936.

Broomcorn. Prospective requirements for broomcorn in the United States in 1936 indicate that the acreage should be reduced.

Forage Seeds. Total production of forage crop seeds was about normal in 1935, altho the quality of seed was below that of 1934.

Fruits. Present acreage of tree fruits in Illinois should be maintained. There is justification for moderate increase in plantings of raspberries and strawberries.

Vegetables. Producers of commercial vegetables probably will be able to market a larger volume of vegetables in 1936 than they did in 1935 without reducing prices.

Hogs. The number of hogs available for slaughter in 1936 will be much lower than normal. Supplies coming to market during the first part of the year will be very short, but increased marketings are expected in the last half of the year.

Beef Cattle. Illinois farmers have little reason to expect that cattle feeding will be as profitable in 1936 as it was in 1935, since the supplies of fed cattle to be marketed will be larger and feeder cattle will cost \$3 to \$4 a hundred more than they did a year earlier. On the other hand, feed costs will be materially lower than in 1935.

Sheep and Wool. Relatively good prices for lambs and wool are in prospect during the early part of 1936. Sheep will be desirable property in 1936 on farms adapted to and equipped for their production.

Horses and Mules. Continued increases in colt production, which began in 1933, promise to terminate in 1936 the long downward trend in numbers of horses and mules on farms. The demand for work stock is expected to continue strong for the next three to five years.

Comparison of Whole Milk and Butter Prices in the St. Louis Milkshed. One of the principal factors causing changes in the price received by producers of whole milk in the St. Louis milkshed is the changes in the price of butter. Two reasons for this are: (1) Prices of about half the milk are based directly upon butter prices, since this proportion of the total volume of milk in the milkshed is sold as sweet cream or manufactured into butter, condensed milk, or other products; and (2) since over a period of time, changes in whole milk prices must correspond closely with changes in butter prices to avoid burdensome surpluses or a scarcity of milk.

Under usual conditions, producers will receive a higher price in the country plant areas for milk used in whole form than for milk condensed or made into butter since quality requirements for the whole milk market necessitate higher production costs. If the average price for whole milk is too high compared with the butter price, this condition will tend to flood the market with milk; if too low, a scarcity of milk will result.

From 1921 to 1929 similar changes took place in whole milk prices and butter prices in the St. Louis country plant area. During this period, few quality requirements on whole milk were enforced. For most of the period from 1930 to 1935, whole milk prices have been somewhat higher than butter prices with whole milk prices declining less rapidly from 1930 to 1933 and increasing more rapidly from 1933 to 1935. It is probable that with enforcement of quality requirements for whole milk sold in St. Louis, the country plant price in this area will continue to be held at a level sufficiently higher than butter prices to pay for the higher costs of meeting these requirements.

Original data for Tables A and B were obtained from the following sources: (1) Bureau of Agricultural Economics, U. S. D. A. Beginning with January, 1936, cash income to Illinois farmers includes the revised estimates of the Bureau. (2) Illinois Crop Reporting Service, Illinois State Department of Agriculture, and U. S. Department of Agriculture, cooperating; (3) Monthly data include an average of current month with eleven preceding months; (4) Federal Reserve Board; (5) National Industrial Conference Board. For explanations of computations, see Number 2, July, 1935.

TABLE A.—INDEXES OF BUSINESS CONDITIONS, SAME MONTH 1921-1929 = 100

	Whole-sale prices of all commodities (U. S.) ¹	Farm prices		Cash income to Illinois farmers		Prices paid by farmers for commodities bought (U. S.) ¹	Purchasing power of income to Illinois farmers	Factory payrolls in the United States ⁴	Cost of living in the United States ⁵	Purchasing power factor payroll
		Illinois ²	United States ¹	Millions ¹	Indexes ³					
1929.....	97	109	103	\$548.6	108	100	108	112	99	113
1930.....	88	95	89	459.7	91	96	95	90	95	95
1931.....	74	65	61	309.5	61	82	74	68	86	79
1932.....	66	44	46	228.7	45	71	63	48	77	62
1933.....	67	47	49	276.7	55	70	79	49	74	66
1934.....	76	64	64	306.1	60	80	75	64	78	82
Nov., 1934.....	78	74	70	25.6	59	83	71	61	79	77
Aug., 1935.....	82	89	75	31.6	71	82	87	72	82	88
Sept., 1935.....	82	88	75	30.3	70	80	88	74	82	90
Oct., 1935.....	82	88	76	.....	..	80	..	75	83	90
Nov., 1935.....	81	82	75	.....	..	80	..	76	83	92

TABLE B.—PRICES AND PRICE INDEXES OF ILLINOIS FARM PRODUCTS

Product	Prices					Indexes: same month 1921-1929 = 100		
	Dec. average		Dec. 1934	Nov. 1935	Dec. 1935	Dec. 1934	Nov. 1935	Dec. 1935
	1910-14	1921-29						
Corn, bu.....	\$.52	\$.68	\$.88	\$.53	\$.48	129	79	71
Oats, bu.....	.37	.40	.51	.24	.23	128	63	58
Wheat, bu.....	.92	1.22	.94	.92	.93	77	78	76
Barley, bu.....	.63	.62	.87	.44	.46	140	75	74
Hogs, cwt.....	6.68	8.34	5.30	8.80	9.00	64	101	108
Beef cattle, cwt..	5.84	7.88	5.20	7.70	7.90	66	98	100
Lambs, cwt.....	5.68	11.03	6.00	8.70	9.30	54	82	84
Milk cows, head	54.00	73.00	35.00	53.00	55.00	48	74	75
Veal calves, cwt..	7.22	10.06	5.30	8.90	9.10	53	87	90
Sheep, cwt.....	4.06	5.87	2.80	3.70	4.05	48	66	69
Horses, head.....	145.00	80.00	87.00	108.00	111.00	109	130	139
Butterfat, lb.....	..	.44	.27	.29	.32	59	68	72
Milk, cwt.....	1.87	2.34	1.65	1.60	1.70	70	68	73
Eggs, doz.....	.29	.47	.26	.29	.30	56	66	63
Chickens, lb.....	.10	.19	.11	.16	.16	61	83	88
Wool, lb.....	.19	.34	.19	.24	.25	55	70	73
Apples, bu.....	.97	1.66	1.25	.65	.80	75	43	48
Hay, ton.....	14.15	13.12	14.80	7.40	7.60	113	57	58
Potatoes, bu.....	.73	1.30	.65	.70	.75	50	56	58
Illinois index of farm prices.....						81	82	82

1-2For sources of data in tables see previous page.

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PENALTY FOR PRIVATE USE TO
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H. F. Mumford

Director Agricultural Extension

FREE Co-operative Agricultural Extension Work.
Acts of May 8, and June 30, 1914.

ILLINOIS FARM ECONOMICS

Department of Agricultural Economics, College of Agriculture and Agricultural Experiment Station, in cooperation with the Extension Service in Agriculture and Home Economics, University of Illinois

Urbana

February, 1936

Number 9

Balancing Supplies of Feed Grains and Livestock Numbers in 1936. Any marked expansion in acreages of feed grains during 1936 is likely to result in overthrowing the present good balance between feed supplies and numbers of livestock, and to result in lower grain prices. For the United States as a whole the acreages of feed grains (corn, oats, barley, and grain sorghums) in 1935 were 4 percent less than the average for the five-year period 1928-1932. Yields, however, were lower in 1935, so that the total production of these grains on a tonnage basis was 10 percent less than in the five-year period.

Changes in numbers of grain consuming livestock were similar, present numbers representing 10 percent fewer animal units than the average of the period 1928-1932. This represents 7.3 million or 12 percent more cattle, 15.5 million or 27 percent less hogs, 2.8 million or 15 percent less horses and mules, and about 1.3 million or 3 percent more sheep, based upon estimates just released by the U. S. Department of Agriculture.

Stocks of corn on farms on January 1 amounted to 1,343 million bushels, which was 65 percent more than that of a year ago and 3.5 percent less than the average for 1928-1932. Oats on farms were more than double the amount held a year ago and 12 percent above the five-year average. The combined tonnage of corn and oats equalled the five-year average, hence at least average carryovers may be expected at the time of harvest of the 1936 crops. The carryover of grain crops from 1934, however, was small because of the severe drouth in that year. After allowing for the shortage from the previous year and for commercial uses, the production of 1935 restored the balance between feeds and livestock.

During 1936 expansion is likely both in crops and livestock numbers. The December pig survey indicated an increase of 31 percent in the fall pig crop of 1935 and of 24 percent in number of sows to farrow in the spring of 1936. Some increase in other kinds of livestock is likely to occur. Such increases would provide an outlet for some additional feed, but expansion of feed production can easily surpass that in livestock numbers.

Corn makes up about 70 percent of the tonnage of feed grains, and with restrictions removed, corn acreage is likely to have most of any expansion which occurs this year. For the five years 1928-1932 the corn acreage in the country averaged 102,768,000 acres, and with an average yield of 25.7 bushels an acre, the total production was 2,562 million bushels. In 1935, 92,727,000 acres with a yield of 23.8 bushels produced 2,203 million bushels. If the acreage this year should be increased to that of the five-year period and yields be average, the production would provide a considerable surplus above needs for feed, commercial uses, and carryover, and would result in low corn prices next fall. Acreages of feed grains equal to those of 1935 would appear to be ample.

Prices of Hogs and Hog Products as Affected by the Removal of the Processing Tax. Following the removal of the hog processing tax there has been a readjustment in the relationship between prices of hogs and hog products. Hog prices rose somewhat in the face of a marked increase in receipts and slaughter, whereas the prices of various hog products have declined. Super-

ficially, at least, the removal of the tax appears to have had more effect toward reducing prices of hog products to the consumer than toward increasing the price of hogs received by the farmer. As shown by Figure 1, the value of the products per 100 pounds of hogs declined by more than \$1.00 following the Supreme Court decision of January 6. Hog prices, on the other hand, rose about 50 cents per 100 pounds. It is probable, however, that had it not been for the removal of the processing tax, hog prices would have declined with increased hog marketings. Hence, hog prices have benefited more than would appear from a consideration of the course of prices alone.

At Chicago the price of hogs (180-200# good to choice) rose from \$9.63 during the week ending January 3 to \$9.91 in the following week, and to a high weekly average of \$10.80 for the week ending February 14. Meanwhile, the

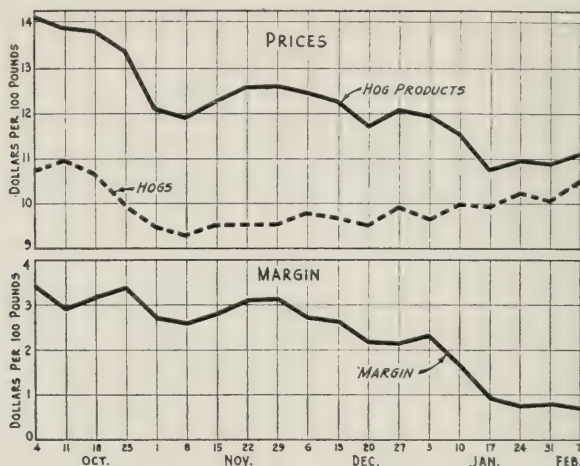


FIG. 1.—PRICES OF HOGS COMPARED WITH WHOLESALE VALUE OF PRODUCTS PER 100 LBS. OF HOGS, CHICAGO, OCTOBER 4, 1935 TO FEBRUARY 7, 1936

wholesale value of edible hog products (hams, loins, bellies, lard, etc.) declined from an average of \$11.97 for the week ending January 3 to \$11.59 the following week and was \$11.11 for the week ending February 7. The gross spread or margin between the value of the hog products and the price of hogs declined from \$2.34 for the week ending January 3 to an average of \$1.68 in the following week and to 67 cents for the week ending February 7. These figures compare with the processing tax of \$2.25 per cwt.

The margin between the cost of hogs (including the processing tax) and the value of the hog products increased from 9 cents for the week ending January 3 to \$1.68 in the following week and then declined to 67 cents for the week ending February 7. This increase in the margin after taking account of the processing tax should not be attributed entirely, if at all, to the removal of the processing tax, for it is to be borne in mind that during the latter part of December and early January the margin was unusually small.

Prior to the removal of the tax a decline in hog prices had been expected. In December the Bureau of Agricultural Economics stated that, "Although prices may show some further improvement or hold near present levels during the next few weeks, some recession is not unlikely to occur during the late winter, when increased marketings are to be expected." A sharp increase in marketings oc-

curred during the week following the Supreme Court decision, total receipts at seven markets rising from 195,000 to 402,000. Slaughter at eight centers likewise increased from 236,000 to 372,000 and in the following week rose to 419,000. These increases in receipts and slaughter were not accompanied by a drop in price as might have been expected, had the hog processing tax been retained. Instead, prices rose from an average at Chicago of \$9.63 for the week ending January 3 to \$9.91 the following week. Subsequently, as receipts declined, prices rose above the \$10 level.

The movements of prices and of receipts of hogs during the past month have tended to confirm the evidence previously available which indicated that the direct burden of the hog processing tax was not being borne by the packers, but rather was being shifted partly to the consumers and partly to producers. Producers were evidently bearing a major portion of the direct effect of the tax.

By direct effect of the tax is meant the effect of the tax alone, not including the effect of the adjustment program as a whole, which was designed to reduce hog supplies at times when such supplies were larger than seemed desirable in the light of existing conditions of demand. In so far, of course, as the tax through the AAA program tended to reduce supplies of hogs coming to market, it also tended to increase prices received by producers. Furthermore, it should also be borne in mind that nearly all of the amount collected by the hog processing tax was returned to corn and hog producers through the rental and benefit payments; hence, nothing which has been said above should be taken to indicate that hog producers as a whole were burdened through the existence of the processing tax and the adjustment program as a whole.

In conclusion, it seems clear that had it not been for the removal of the processing tax in the first week of January, that month would have witnessed a rather sharp decline in the price of hogs, due to increased marketings. Probably the actual amount marketed from week to week was also somewhat affected by the removal of the tax and the consequent rise in price. Nevertheless it does not appear that the market price of hogs has as yet received the full benefit which is to be expected from the removal of the tax.

Illinois Peach Prospects. The outlook for a peach crop in Illinois in 1936 received a severe set-back during the recent period of extremely cold weather. According to reports procured through contact with a number of growers from the various producing regions, peach buds have been practically all killed in the entire area north of Mt. Vernon. This includes the whole of the important Centralia district or the northern peach region. It comprises Marion, Jefferson, Washington, Clay and a few adjoining counties. In a normal crop year this area produces about 40 percent of the Illinois peach crop; in 1935 it produced about 60 percent. In the southern peach area, centering in Union County, and extending into Johnson, Massac and a few adjacent counties, the killing of the buds has apparently not been so complete. In Johnson County, particularly, there are still plenty of live buds for a crop in the orchards on high ground, but in low-lying orchards nearly all the buds are killed. It seems probable that similar conditions obtain in Union County, though reports are less complete. In the vicinity of Metropolis, in Massac County, the Elberta variety shows a few live buds on high ground only, while the Red Bird variety seems to have plenty of live buds for a crop, tho its acreage is extremely small.

Original data for Tables A and B were obtained from the following sources: (1) Bureau of Agricultural Economics, U. S. D. A. Beginning with January, 1936, cash income to Illinois farmers includes the revised estimates of the Bureau. (2) Illinois Crop Reporting Service, Illinois State Department of Agriculture, and U. S. Department of Agriculture, cooperating; (3) Monthly data include an average of current month with eleven preceding months; (4) Federal Reserve Board; (5) National Industrial Conference Board. For explanations of computations, see Number 2, July, 1935.

TABLE A.—INDEXES OF BUSINESS CONDITIONS, SAME MONTH 1921-1929 = 100

	Whole- sale prices of all com- modities (U. S.) ¹	Farm prices		Cash income to Illinois farmers		Prices paid by farmers for com- modities bought (U. S.) ¹	Pur- chasing power of income to Illinois farmers	Factory payrolls in the United States ⁴	Cost of living in the United States ⁵	Pur- chasing power of factory payrolls
		Illinois ²	United States ¹							
				Millions ¹	Indexes ³					
1929.....	97	109	103	\$548.6	108	100	108	112	99	113
1930.....	88	95	89	459.7	91	96	95	90	95	95
1931.....	74	65	61	309.5	61	82	74	68	86	79
1932.....	66	44	46	228.7	45	71	63	48	77	62
1933.....	67	47	49	276.7	55	70	79	49	74	66
1934.....	76	64	64	306.1	60	80	75	64	78	82
Dec., 1934...	78	81	70	26.5	60	83	72	64	79	81
Sept., 1935...	82	88	75	30.3	70	80	88	74	82	90
Oct., 1935...	82	88	76	33.5	70	80	88	75	83	90
Nov., 1935...	82	82	75	.....	..	80	..	76	83	92
Dec., 1935...	83	82	76	.....	..	80	..	78	83	94

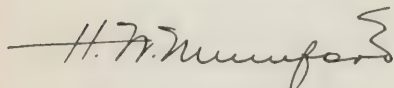
TABLE B.—PRICES AND PRICE INDEXES OF ILLINOIS FARM PRODUCTS

Product	Prices					Indexes: same month 1921-1929 = 100		
	Jan. average		Jan. 1935	Dec. 1935	Jan. 1936	Jan. 1935	Dec. 1935	Jan. 1936
	1910-14	1921-29						
Corn, bu.....	\$.52	\$.67	\$.86	\$.48	\$.49	128	71	73
Oats, bu.....	.37	.42	.53	.23	.24	126	58	57
Wheat, bu.....	.94	1.32	.93	.93	.97	70	76	74
Barley, bu.....	.62	.64	.84	.46	.51	131	74	80
Hogs, cwt.....	7.18	8.66	7.25	9.00	9.30	84	108	107
Beef cattle, cwt..	5.46	7.45	6.36	7.90	8.20	85	100	110
Lambs, cwt.....	5.88	11.17	7.67	9.30	9.20	69	84	82
Milk cows, head	53.00	70.00	37.22	55.00	54.00	53	75	77
Veal calves, cwt..	7.10	10.37	6.87	9.10	9.30	56	90	90
Sheep, cwt.....	4.20	6.07	3.13	4.05	3.85	52	69	63
Horses, head....	150.00	83.00	94.00	111.00	113.00	113	139	136
Butterfat, lb.....	..	.44	.29	.32	.32	68	72	73
Milk, cwt.....	1.84	2.38	1.65	1.75	1.75	69	75	74
Eggs, doz.....	.28	.39	.25	.30	.22	64	63	57
Chickens, lb.....	.10	.20	.12	.16	.17	60	88	85
Wool, lb.....	.21	.32	.21	.25	.27	66	73	85
Apples, bu.....	1.17	1.78	1.44	.80	.90	81	48	51
Hay, ton.....	13.58	14.47	15.17	7.60	7.60	105	58	52
Potatoes, bu.....	.75	1.30	.68	.75	.75	52	58	58
Illinois index of farm prices.....	88	82	84

1-3For sources of data in tables see previous page.

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ILLINOIS FARM ECONOMICS

Department of Agricultural Economics, College of Agriculture and Agricultural Experiment Station, in cooperation with the Extension Service in Agriculture and Home Economics, University of Illinois

Urbana

March, 1936

Number 10

Numbers of Livestock on Farms. As production shifts, numbers of the different kinds of livestock on farms in the United States change from year to year in swings or "cycles". These production cycles arise from efforts of large numbers of farmers to increase their production of one kind of livestock in response to more favorable livestock prices or more plentiful feed supplies and later to reduce production when livestock prices have fallen below levels generally considered profitable, or when feed has become scarce and higher priced. Such changes in production plans are usually based upon the prices which prevail at breeding time rather than upon those likely to prevail when the changed production finally comes on the market. Because considerable time elapses before the changes in production are reflected in market receipts, the amount of change is usually greater than needed to effect a balance. Consequently the swing is carried too far and livestock numbers are out of adjustment on the other side before the natural check of changing prices again reverses the movement.

These cyclical movements in livestock production are quite regular, but the length of the cycles is different for the different kinds of livestock. The length of cycle is largely dependent upon the length of time ordinarily required for large numbers of producers to work out changes in production plans and to bring the products to the marketing stage.

Some producers do not contribute to these excessive swings of production because they keep posted on the trends in livestock numbers and so are able to anticipate periods of over- and under-production. They are able to time their production and marketing to advantage.

In addition to the usual cyclical influences the numbers of some kinds of livestock have changed greatly in recent years because of the drouth and of the direct and indirect effects of the AAA program. The estimated numbers of livestock as

TABLE 1.—ESTIMATED NUMBERS OF LIVESTOCK ON FARMS OF THE UNITED STATES, JANUARY 1, 1925-1936 (000 OMITTED)¹

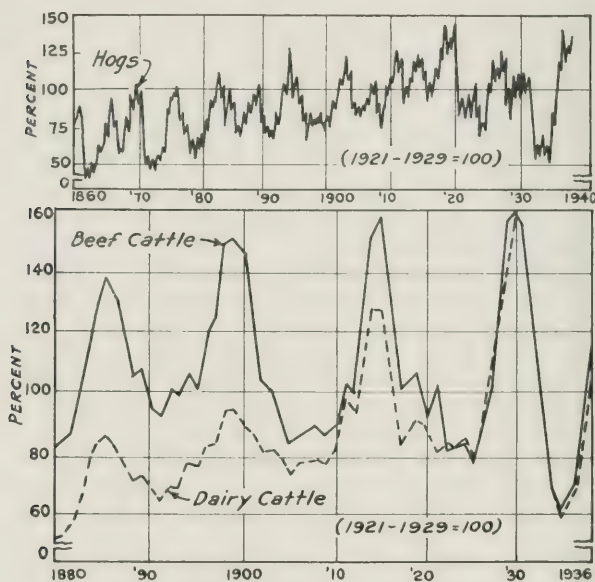
	All cattle	Cows and heifers ²	Hogs	Sheep	Horses	Mules
925.....	63 373	22 575	55 770	38 543	16 651	5 918
926.....	60 576	22 432	52 105	40 363	16 083	5 903
927.....	58 178	22 286	55 496	42 415	15 388	5 804
928.....	57 322	22 287	61 873	45 258	14 792	5 656
929.....	58 877	22 508	59 042	48 381	14 234	5 510
930.....	61 003	23 106	55 705	51 565	13 742	5 382
931.....	63 030	23 885	54 835	53 233	13 195	5 273
932.....	65 770	24 982	59 301	53 974	12 664	5 148
933.....	70 214	26 030	62 127	53 075	12 291	5 046
934.....	74 262	27 059	58 621	53 713	12 052	4 945
935.....	68 529	26 236	39 004	52 251	11 861	4 822
936.....	68 213	25 622	42 541	51 690	11 637	4 685

¹From Crops and Markets, Feb. 1936, U.S.D.A. ²Two years old and over, kept for milk cows. These are included in all cattle.

of January 1 beginning with 1925 are reproduced from data recently published by the Bureau of Agricultural Economics to show these cycles and to make more generally available the revisions recently made in estimated numbers from 1930 to date. (Table 1)

Major cycles in numbers of hogs occur at intervals of about 4 to 7 years from "peak" numbers until, following liquidation, numbers have again increased to a "peak". Thus from a peak of 69.3 millions in 1923, hog numbers declined to 52.1 millions in 1926, rose to 61.8 millions in 1928, declined again to 54.8 millions in 1931, and again rose to 62.1 millions in 1933. The next decline was greatly accelerated by the drouth and AAA program, with a reduction to 39.0 millions in

FIG. 1.—INDEXES OF THE PURCHASING POWER OF PRICES OF
HEAVY HOGS AT CHICAGO¹ AND OF BEEF CATTLE
AND DAIRY CATTLE, UNITED STATES²



¹Chart adapted from Cornell University farm Economics, March, 1935. ²Based upon data from Bureau of Agricultural Economics, U.S.D.A.

1935. This was the smallest number recorded for about 55 years. Hog numbers are again increasing and may be expected to increase for somewhat more than the usual period or until declining prices check the expansion.

Cattle cycles usually run from 14 to 16 years, the longer period than with hogs reflecting the slower rate of increase and of liquidation. Cattle numbers were at a peak in 1920, when 70.4 millions were on hand. The subsequent decline lasted until 1928, when numbers had declined to 57.3 millions; from this point they rose to 74.2 millions, the highest number on record, in 1934. The drop in numbers was abrupt in 1934, and has declined slowly since, altho cattle numbers are much above the previous low point. In general, numbers of dairy cows and heifers follow the cycles of all cattle. Discarded dairy cows and calves make up a part of the total beef supply. Numbers of milk cows are influenced by

prices of dairy products as well as by cattle prices, but since the final disposition of all groups of cattle is the block, the cycles generally agree.

Numbers of sheep usually run in cycles of 8 to 10 years, altho the most recent upward swing began in 1923 and lasted until 1932, with a gradual liquidation since that time.

Cycles in horse and mule production, which previously ran from 25 to 30 years, have been affected since the war by the increase in motorized equipment. Numbers of horses have declined steadily since the peak in 1918 and mules since 1925. Altho there is evidence of recent increased breeding, the rate of increase is not large enough to maintain present numbers.

Relationship of Numbers to Prices. While livestock prices are affected by the long-time price level, by seasonal fluctuations arising from uneven marketing, and by changes in demand, the cycles of production discussed above tend to give rise to price cycles of similar length, but of reverse direction. Thus the liquidation which follows the accumulation of large numbers of one kind of livestock is accompanied by relatively low prices and the periods of small market receipts by relatively high prices, if there are no counterbalancing changes in the general level of prices or in demand. Cycles may be used to gain an idea of the direction that production and prices are likely to take over the next few years.

A peak in the price of hogs was reached in 1935 as a result of the extreme reduction in the supply of hogs marketed and the increased demand (Fig. 1). In February, 1936, the index of farm prices of hogs in Illinois was 110, while that of all Illinois farm prices was 86. In the fall of 1936 hog prices may be expected to be lower in relation to the general index of farm prices because of increasing numbers coming to market.

The bottom of the recent price cycle of beef and dairy cattle was reached in 1934. Prices are now definitely upward, while numbers are downward. It is probable that the prices of beef and dairy cattle will be upward during the next few years while cattle are being held back to rebuild herds. During this period the short-time fluctuations arising from other causes may be expected to continue. Present prices of both beef cattle and hogs are high compared with prices of grains or of products such as milk, butter, and eggs. Prices of different kinds of meat animals are held somewhat together since consumers shift rather easily from higher priced to lower priced meats.

During the past three years prices of horses have risen rapidly and in January, 1936, the purchasing power of horses was nearly 50 percent higher than three years ago. Rising prices will likely continue for several years because of greatly reduced numbers.

Numbers of Livestock on Illinois Farms. All cattle on Illinois farms on January 1, 1936 showed an increase of 4 percent above 1934 numbers, and cows and heifers a reduction of 3 percent. Sheep and lambs have increased quite steadily since 1925. Only a slight temporary liquidation of cattle occurred in 1934 and sheep numbers increased, because of the relatively better feed situation in Illinois than in many other states. Cattle and sheep numbers are therefore high. Hog numbers, however, have followed the national trend closely. Numbers of horses and mules have declined rapidly. Numbers on Illinois farms January 1, 1936 were: cattle, 2,788,000; cows and heifers, 1,169,000; hogs, 3,931,000; sheep, 921,000; horses, 739,000; and mules, 110,000.

Original data for Tables A and B were obtained from the following sources: (1) Bureau of Agricultural Economics, U.S.D.A. Beginning with January, 1936, cash income to Illinois farmers includes the revised estimates of the Bureau. (2) Illinois Crop Reporting Service, Illinois State Department of Agriculture, and U. S. Department of Agriculture, cooperating; (3) Monthly data include an average of current month with eleven preceding months; (4) Federal Reserve Board; (5) National Industrial Conference Board. For explanations of computations, see Number 2, July, 1935.

TABLE A.—INDEXES OF BUSINESS CONDITIONS, SAME MONTH 1921-1929 = 100

	Whole-sale prices of all commodities (U. S.) ¹	Farm prices		Cash income to Illinois farmers		Prices paid by farmers for commodities bought (U. S.) ¹	Purchasing power of income to Illinois farmers	Factory payrolls in the United States ⁴	Cost of living in the United States ⁵	Purchasing power of factory payrolls
		Illinois ²	United States ³	Millions ¹	Indexes ²					
1929.....	97	109	103	\$548.6	108	100	108	112	99	113
1930.....	88	95	89	459.7	91	96	95	90	95	95
1931.....	74	65	61	309.5	61	82	74	68	86	79
1932.....	66	44	46	228.7	45	71	63	48	77	62
1933.....	67	47	49	276.7	55	70	79	49	74	66
1934.....	76	64	64	306.1	60	80	75	64	78	82
Jan., 1935....	79	88	74	32.5	63	83	76	69	80	86
Oct., 1935....	82	88	76	33.5	70	80	88	75	83	90
Nov., 1935....	82	82	75	30.6	71	80	89	76	83	92
Dec., 1935....	83	82	76	29.3	72	80	90	78	83	94
Jan., 1936....	80	84	76	33.1	72	80	90	78	83	94

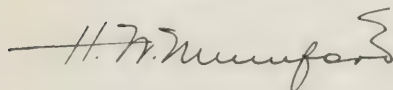
TABLE B.—PRICES AND PRICE INDEXES OF ILLINOIS FARM PRODUCTS

Product	Prices					Indexes: same month 1921-1929 = 100		
	Feb. average		Feb. 1935	Jan. 1936	Feb. 1936	Feb. 1935	Jan. 1936	Feb. 1936
	1910-14	1921-29						
Corn, bu.....	\$.53	\$.69	\$.82	\$.49	\$.51	119	73	74
Oats, bu.....	.38	.42	.53	.24	.25	126	57	60
Wheat, bu.....	.95	1.34	.89	.97	.95	66	74	71
Barley, bu.....	.64	.65	.81	.51	.54	125	80	83
Hogs, cwt.....	7.32	9.08	7.54	9.30	10.00	83	107	110
Beef cattle, cwt..	5.68	7.33	7.44	8.20	7.90	102	110	108
Lambs, cwt.....	6.00	11.24	7.43	9.20	9.00	66	82	80
Milk cows, head	54.00	71.00	41.66	54.00	55.00	59	77	78
Veal calves, cwt..	7.18	10.73	7.37	9.30	10.20	69	90	95
Sheep, cwt.....	4.40	6.26	3.68	3.85	3.90	59	63	62
Horses, head....	155.00	87.00	98.00	113.00	109.00	113	136	125
Butterfat, lb.....	.42	.42	.35	.32	.34	84	73	81
Milk, cwt.....	1.77	2.31	1.65	1.75	1.70	71	74	74
Eggs, doz.....	.24	.31	.25	.22	.25	82	57	80
Chickens, lb.....	.11	.21	.14	.17	.18	66	85	87
Wool, lb.....	.21	.32	.19	.27	.27	59	85	84
Apples, bu.....	1.19	1.86	1.45	.90	1.05	78	51	56
Hay, ton.....	13.75	14.32	14.42	7.60	7.80	100	52	54
Potatoes, bu.....	.76	1.32	.72	.75	.85	54	58	64
Illinois index of farm prices.....						91	84	86

1-5For sources of data in tables see previous page.

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ILLINOIS FARM ECONOMICS

Department of Agricultural Economics, College of Agriculture and Agricultural Experiment Station, in cooperation with the Extension Service in Agriculture and Home Economics, University of Illinois

Urbana

April, 1936

Number 11

American Institute of Cooperation. The Twelfth Annual Session of the American Institute of Cooperation will be held June 15-19 at the University of Illinois, at Urbana, Illinois. In connection with the Institute four special courses for graduate students will be offered for a period of four weeks. The courses offered will be in cooperative marketing, dairy marketing, livestock marketing, and fruit and vegetable marketing. These courses will be in charge of the local staff supplemented by guest speakers. The morning sessions of the Institute will be devoted to problems and issues in which all cooperatives are interested. Following the general forenoon meeting the afternoons will be given over to intensive sectional discussion for the various commodity interest groups. The principal

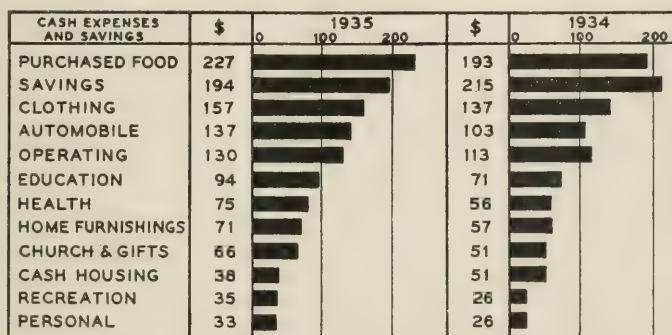


FIG. 1.—CASH EXPENSES AND SAVINGS FOR 50 IDENTICAL FARM FAMILIES, 1934 AND 1935

sessions will be devoted to livestock, dairying, grain, fruits and vegetables, eggs and poultry, credit, and cooperative purchasing. Special conferences during the week will be arranged for vocational agricultural teachers, county agents, local officials of credit organizations, and others.

More Money Spent by Farm Families in 1935. An increase of nearly 15 percent in cash available for family spending and saving in 1935 over 1934 is shown by 50 home account records kept by identical Illinois farm families for both years. Since these families have been studying money management and keeping accounts for six or more years, they are likely a more select group and may show a greater increase in income than the whole group of families keeping home accounts. This can be checked when all the 1935 home account records have been summarized.

The average amount of cash available for spending and saving was \$1257 in 1935 and \$1099 in 1934. This cash was supplemented by \$630 worth of commodities and services furnished by the farm in 1935 and \$563 in 1934. These figures are expressed in dollars, since the purchasing power of the dollar for all commodities used for family maintenance changed only from an index of 122

in 1934 to 124 in 1935. Food costs increased about 9 percent, while clothing and building materials for the house dropped approximately an equal amount.

How widely the larger income available for family spending in 1935 was distributed is apparent on the chart. (Fig. 1). In individual cases considerable amounts were used to purchase new cars and furnishings for the home such as electric refrigerators, radios and stoves.

RUTH CRAWFORD FREEMAN

Farm Earnings Improved Slightly in 1935. A preliminary survey of farm records indicates that earnings on Illinois farms were slightly higher in 1935 than in 1934, although much variation was evident in different parts of the state. Combined yields of corn, oats, wheat, soybeans and hay for the state in 1935 were about 4 percent above the average for the period 1924-33. Of these crops, corn, soybean and hay yields were above average, while wheat and oat yields were below average.

Yields varied widely in different areas. They were much above average for a group of counties in the northeastern part of the state and for another area east of St. Louis. They were much below average for one group of counties in southeastern Illinois and for another group along the Illinois River in the west-central part of the state. Areas that had good crop yields in 1934 followed by low yields in 1935 had large inventory losses in the grain account, since there were fewer bushels of grain on hand and the price per bushel was less at the end of the year than at the beginning. Records have not yet been analyzed for the northern and western parts of the state, which include the beef cattle and hog area. Because livestock prices advanced during 1935 it is expected that this area will show a greater increase in earnings than other parts of the state.

An analysis of farm records from Randolph, St. Clair, Madison, Clinton Bond, Montgomery, Effingham, Jersey, Greene, Shelby, Sangamon, Morgan Adams, McDonough, Ford, Iroquois, and DeKalb counties indicates that cash farm incomes were higher in 1935 than in 1934 but that cash expenditures increased even more rapidly (Table 1). The cash farm income for the counties named was \$4227 per farm in 1935 compared with \$3799 in 1934, an increase of 11 percent. The average cash expenditure per farm in 1935 was \$2559 as contrasted with \$1987 in 1934, or an increase of 29 percent. The increase in cash

TABLE 1.—COMPARISON OF CASH INCOME AND CASH EXPENSES ON ACCOUNTING FARMS FROM SELECTED AREAS IN ILLINOIS, 1934 AND 1935

	Cash income per farm		Cash expense per farm	
	1935	1934	1935	1934
Horses.....	\$ 82	\$ 62	\$ 73	\$ 52
Cattle.....	797	658	376	226
Hogs.....	1 069	872	78	39
Sheep.....	90	67	36	22
Poultry and eggs.....	319	235	25	20
Dairy sales.....	451	434	...	...
Feed and grains.....	1 177	1 280	507	489
Machinery.....	163	101	630	409
Improvements.....	3	4	180	127
Labor.....	72	83	223	172
Miscellaneous.....	4	3	28	27
Livestock expense.....	...	...	36	37
Crop expense.....	...	...	169	152
Taxes.....	...	...	198	215
Total.....	\$4 227	\$3 799	\$2 559	\$1 987

incomes came entirely from the sale of livestock and livestock products. Sales of livestock amounted to \$2808 per farm in 1935 as contrasted with \$2328 in 1934, or an increase of 21 percent. Because of the rapid decline in the price of grain during 1935, cash incomes from grain were less than in 1934.

How farmers spent their money in 1935 indicates clearly the influence of increased farm earnings on general business activity. Record-keeping farmers in the counties named spent an average of \$409 per farm for machinery, gas, oil and repairs in 1934 and \$630 in 1935, an increase of 54 percent. The average expenditure in 1934 for farm improvements was \$127 per farm but increased to \$180 in 1935, an increase of 42 percent. Farmers also spent 29 percent more for hired labor in 1935. Livestock expenditures also increased 64 percent, the major portion of which was for the purchase of feeder cattle. The only item for which expenditures in 1935 were lower than in 1934 was taxes, which were only 92 percent as high.

After deducting farm business expenditures from income, there was a cash balance of \$1668 per farm in 1935 as compared with \$1812 in 1934. The smaller cash balance in 1935 was offset, however, by larger inventories at the end of the year. Cash expenditures in most areas in 1935 were large enough that for the first time in many years value of machinery and improvement inventories at the end of the year showed an increase over the beginning of the year. The increase in inventory values of livestock in 1935 was sufficient to show slightly higher net farm incomes in 1935 than in 1934 for the counties included.

P. E. JOHNSTON

Total Agricultural Production in Illinois Will Be Changed by the New Soil Conservation Program. The new soil conservation program places a premium on the reduction of grain and other soil depleting crops and encourages the growing of soil conserving and soil building crops. This change in the cropping system raises a question in regard to the effect the program will have on the production of agricultural products. This concerns the effect not only on crop production, but especially on production of livestock and livestock products.

The need of improving the use of Illinois land is apparent. The effects of introducing improved cropping systems and a better long-time use of land have been studied recently by the Illinois Agricultural Experiment Station in cooperation with the U. S. Department of Agriculture. A careful analysis was made, based upon the research work of the Experiment Station in soils, cropping systems and livestock feeding, upon farm records secured thruout the state, and upon Census and other data, in order to ascertain desirable changes in land use and the probable effects of these changes on total production. The average yields of important crops have barely been maintained or have declined somewhat in spite of improvement in cultural practices, improved varieties of crops, and increased knowledge of production. This statement is more significant since some of the least desirable crop land has already been removed from production and additional land of high productivity has been added thru drainage.

Recently emphasis has been placed upon the need of shifting some land which has been used either for pasture or for cropping over to the growing of timber or for recreational use. In addition, there are small tracts of many farms that can best be protected from serious erosion, by using them for woodland purposes, and the net income from such land will probably be increased. Other and now cultivated is better adapted to permanent pasture than to crop purposes. The new soil conservation program which has been introduced to replace the AAA will encourage making these adjustments. In addition, the new program

will encourage the growing of legume crops and soil conserving crops as a means of building up the fertility of the soil, or of at least maintaining its productivity. The general tendency, therefore, is to increase materially the production of roughage crops and pasture and to curtail the production of grain crops. The final effect of these adjustments on total agricultural production will have to be interpreted in the light of farm practice.

Some fears have been expressed that the new program will tend to increase livestock production and thus affect unfavorably the market for livestock and livestock products. In general, it is believed that the program will tend to reduce hog production but that it will encourage the production of cattle and sheep. On most farms where large numbers of hogs are produced, the number of hogs is influenced by the amount of grain produced; consequently, a decrease in grain production will tend to decrease hog production. On the other hand, the increase in hay and pasture will tend to increase those kinds of livestock which use hay and pasture to advantage. In the final analysis the shift in production to less grain and more roughage crops should result in less total production of meat, since an acre of corn will produce more pounds of meat as pork than an acre of legume or grass pasture or hay will produce in pounds of beef or mutton.

The answer to the dairy situation does not appear quite as clear. In general, an increase in a forage crop, especially a good legume crop, will tend to reduce the use of grain but encourage the use of more roughage. This will tend to reduce the cost of producing dairy products, even tho the production per cow may not be quite as high. During the depression years, many farmers who had not regularly produced milk for sale turned to dairying as a source of cash income; as a result many grade herds unsuited to dairy production have been milked during the depression years. With a better balanced production of agricultural products, there will be a tendency for many of these men to shift from dairying back to the production of calves for beef purposes. With relatively less favorable prices for dairy products than for livestock prices at the present time, it is believed that the new program will not encourage material increase in dairy production. When production is once stabilized with the new agricultural program brought into action, it is believed that there may be an actual net decrease in total production of meat and no material change in the present production of dairy products, compared with that in the period immediately preceding the AAA program.

J. E. WILLS and H. C. M. CASE

Land Tenure in Illinois. Of each 1000 farm operators in Illinois in 1935, 445 were tenants, 8 managers, 172 part owners, and 375 full owners (Table 2).

Of each 1000 acres of farm land, tenants operated 491, managers 15, part owners 211, and full owners 283. Of the 211 operated by part owners, it is estimated that about 101 acres were rented land, and 110 acres owned, so that for the state a total of about 592 acres per 1000 were rented and 393 acres were operated by owners.

Of each 1000 acres of harvested crop land, tenants operated 524 acres, managers 14, part owners 219, and full owners 243. Of the 219 acres operated by part owners, it is estimated that 130 acres were rented and 89 acres were owned, making a total of about 654 crop acres per 1000 rented and about 332 owned.

Illinois tenants were operating \$508 of each \$1000 worth of farm real estate in 1935, the managers \$21, part owners \$182, and full owners \$289. It is estimated that part owners were operating practically \$90 worth of realty as renters and about \$92 worth as owners. If the total value of real estate owned by part

TABLE 2.—PROPORTION OF FARM REAL ESTATE OPERATED BY TENURE CLASSES, ILLINOIS, 1930 AND 1935

Kind of tenure	Number of farms		Number of farm acres				Dollars worth of farm realty	
			Total		Harvested crops			
	1935	1930	1935	1930	1935	1930	1935	1930
	<i>perct.</i>	<i>perct.</i>	<i>perct.</i>	<i>perct.</i>	<i>perct.</i>	<i>perct.</i>	<i>perct.</i>	<i>perct.</i>
Total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Tenants.....	44.5	43.1	49.1	48.7	52.4	52.9	50.8	51.0
Part owners.....	17.2	16.2	21.1	19.7	21.9	20.0	18.2	17.4
Rented.....	.....	.....	10.1	9.5	13.0*	12.0*	9.0*	8.5*
Owned.....	.....	.....	11.0	10.2	8.9*	8.0*	9.2*	8.9*
Full owners.....	37.5	39.7	28.3	29.9	24.3	25.6	29.8	29.1
Managers.....	.8	1.0	1.5	1.7	1.4	1.5	2.1	2.5

*Estimated by authors.

owners is added to that of full owner operators, only about 38 percent of the state's total farm realty was operated by its owners. Similarly, 60 percent of the value of farm realty was operated by renters.

The average value of land and buildings was \$9,536 per farm, or \$69.67 per acre. For tenant farmers the average per farm was \$10,897, or 14 percent higher than for all farms, and the average per acre was \$72.04, or 3 percent higher than for all farms. In 90 of the 102 counties, however, tenant farms averaged less in value than other farms. The highest percentages of tenancy were in counties where the real estate valuations were relatively high, and the highest percentages of operating ownership were where the real estate valuations were low. Consequently, considering the state as a whole, tenants showed higher valuations per farm and per acre than did operating owners.

The highest percentages of farms operated by tenants in 1935 were: Logan, 67.1; Ford, 66.4; Alexander, 66.0; Grundy, 64.2; Piatt, 63.4; Livingston, 63.3; McLean, 61.0; DeWitt and Mason, 60.3; and Champaign, 60.1. Of these ten counties all but one were located in the central and upper central portions.

Of the 102 Illinois counties the numbers in which tenancy exceeded 50 percent in 1935 were as follows: based upon the number of farms, 34; based upon real estate valuations, 39; based upon total acreage, 45; and upon crop acres, 56.

In 15 counties fewer than 30 percent of the farms were operated by tenants. Of these, eleven were interior counties in the southern portion of the state. For the most part counties having low percentages of farms operated by tenants had also low percentages of real estate values in the hands of tenants, and relatively low proportions of total acreage and of crop area in tenant farms.

In 8 counties over 30 percent of the farms were operated by part owners: namely, Jasper, Effingham, Clay, Richland, Wayne, Hamilton, Edwards, and Perry. Most southern counties which had large proportions of the farms operated by part owners had even larger proportions of their realty valuations and total acreage on part owner farms. In a number of southern Illinois counties low percentages of tenancy have created an illusion that little renting prevails, whereas, since between two-fifths and one-half of the real estate in part owner farms is rented, part owner tenancy when added to regular tenancy results in total percentages nearly as high as in many Central and Northern Illinois counties.

Full owners operated 50 percent or more of farms in two counties in northwestern Illinois, JoDaviess and Rock Island, and in eight southern counties, Calhoun, Hardin, Johnson, Massac, Pope, Saline, Union, and Williamson. When realty valuations are considered, nine counties reported 50 percent or more of the property in farms of full owners. Only five counties reported full owners operating over half of all farm land, and only three counties reported full owners operating over half of the crop land.

Full owners were reported to be operating under 25 percent of the farms in nine counties: Logan, 20.4; Piatt, 20.5; Mason, 21.3; Putnam, 22.0; Ford, 22.3; Champaign, 22.6; Livingston, 23.0; Alexander, 23.8; and Grundy, 23.9. For these full owner farms the corresponding percentages on the basis of values would be only about four-fifths as large as those shown, and on the basis of acreages only about two-thirds to three-fourths as large. Inclusion of owned land of part owners with that of full owners in most of these counties gives a total of less than 25 percent of real estate values and acreages.

Trends in recent years, particularly since 1930, point toward (1) increase in relative numbers of tenant farms, and of acreages in these farms; (2) increase in relative numbers of farms and acres and in relative values in farms of part owners; and (3) decrease in relative numbers of farms, acres and values in farms of full owners. While tenant farms decreased in average size more and in value less than did farms of all operators, the relative prominence of tenant farms in numbers and acres continued an upward trend following 1920 which, up to that time, had been accompanied by marked increases in relative values in tenant farms.

JOSEPH ACKERMAN and C. L. STEWART

The Relation of Seasonal Milk Production to Costs of Production and Marketing. An effort to bring about a more even seasonal production of milk is sound economically because it tends to produce: (1) A lower unit cost of production; (2) Lower total costs for maintaining high quality of a sufficient volume of milk to meet market requirements; (3) Lower transportation costs, and (4) Lower costs of maintaining milk-receiving stations. The basic-surplus plan of marketing has been used both for obtaining a more even flow of milk thruout the year and for restricting the total milk production. These two purposes, however, differ widely in their results. In fact, some studies have shown that restriction tends to result in *uneconomic* production.

A large volume of milk per cow can be produced uniformly thruout the year at a somewhat lower unit cost than can a smaller volume with a wide seasonal variation. Fall-freshening cows produce heavily in the fall and winter months as well as in the spring months, and consequently produce a greater annual quantity of milk than spring-freshening cows. While total feed costs are higher for cows freshening in the fall, the increase in production exceeds that in feed costs, and consequently unit costs of production are lower. Hence, by adjusting breeding practices so that some cows freshen in the fall months and some in the spring, a more uniform production of milk is secured, and at lower unit costs.¹

The economic limits of a milkshed are determined principally by the production area necessary to supply the market demand for milk in the month of lowest production. A wide seasonal variation in production, therefore, necessitates an unnecessary extension of the milkshed and results in large amounts of whole milk being sold for surplus uses in the months of high production (Fig. 2). Even tho milk produced on the outlying farms in a milkshed is used in whole-

¹(a) Pennsylvania Agr. Exp. Sta. Bulletin No. 231, pp. 50-57, 1928. (b) "Facts About the Cost of Market Milk Production in Ohio," Ohio State University Ext. Rep. 1928. (c) Iowa Agr. Exp. Station Bulletin No. 243, p. 95, 1927.

milk form during only one or two months of the year, it is necessary on these farms to maintain market quality requirements the year around.

The number of trucks required to collect and transport milk is fixed by the period of greatest production. Thus seasonal peaks or wide seasonal variations in milk production result in unused transportation capacity most of the year, and consequently cause extra hauling costs in marketing whole milk. With a narrow range in seasonal production, fewer trucks would be necessary since each truck could haul a larger total annual volume of milk and lower labor and operating costs would be incurred in hauling the same volume. As an illustration, one of each four trucks now in use in St. Louis country plant areas could be eliminated if the volume per truck were increased as a result of a substantial reduction in the seasonal variation in milk hauled.

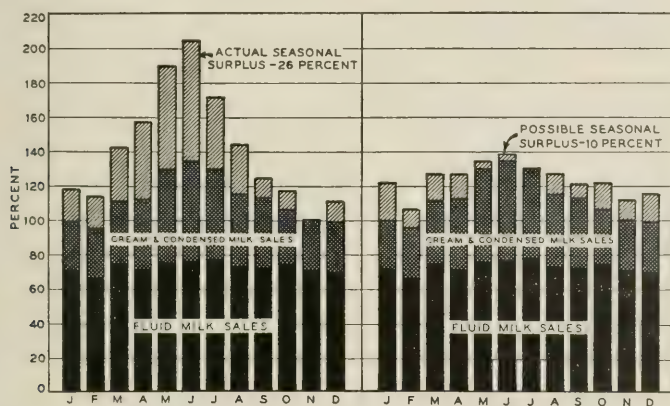


FIG. 2.—ACTUAL AND POSSIBLE SEASONAL SURPLUSES OF WHOLE MILK IN EXCESS OF REQUIREMENTS FOR FLUID MILK, CREAM, AND CONDENSED MILK SALES IN THE NEW YORK MILKSHED

A wide seasonal variation in production makes necessary the maintenance of buildings and equipment which are used for receiving milk during only part of the year, and reduction in such variation would make possible an increase in the volume per station. Volume per station could be increased in either or both of two ways: (1) By a reduction in the number of country milk receiving stations; and (2) by an increase in receipts from dairymen within the producing area. If, for example, the seasonal variation in volume of milk handled by 52 country milk-receiving stations in Pennsylvania were reduced to that handled per station in the Philadelphia milkshed in which a low seasonal variation prevails, an average saving of 3.8 cents per hundred pounds of milk, or 17.5 percent of the total operating costs of the stations could be obtained, because of the greater average volume per station.

The aggregate reductions in costs attainable thru the development of a more even seasonal production of milk would materially increase the incomes of dairymen producing for city markets without any increased cost to the consumer.

WAYNE CASKEY

Original data for Tables A and B were obtained from the following sources: (1) Bureau of Agricultural Economics, U.S.D.A. Beginning with January, 1936, cash income to Illinois farmers includes the revised estimates of the Bureau. (2) Illinois Crop Reporting Service, Illinois State Department of Agriculture, and U.S. Department of Agriculture, cooperating; (3) Monthly data include an average of current month with eleven preceding months; (4) Federal Reserve Board; (5) National Industrial Conference Board. For explanations of computations, see Number 2, July, 1935.

TABLE A.—INDEXES OF BUSINESS CONDITIONS, SAME MONTH 1921-1929 = 100

	Whole-sale prices of all commodities (U. S.) ¹	Farm prices		Cash income to Illinois farmers		Prices paid by farmers for commodities bought (U. S.) ¹	Purchasing power of income to Illinois farmers	Factory payrolls in the United States ²	Cost of living in the United States ³	Purchasing power of factory payrolls
		Illinois ²	United States ¹	Millions ¹	Indexes ¹					
1929.....	97	109	103	\$548.6	108	100	108	112	99	113
1930.....	88	95	89	459.7	91	96	95	90	95	95
1931.....	74	65	61	309.5	61	82	74	68	86	79
1932.....	66	44	46	228.7	45	71	63	48	77	62
1933.....	67	47	49	276.7	55	70	79	49	74	66
1934.....	76	64	64	306.1	60	80	75	64	78	82
1935.....	82	88	76	362.1	72	82	88	72	82	88
Feb., 1935...	80	91	78	26.8	65	83	78	71	81	88
Nov., 1935...	82	82	75	30.6	71	80	89	76	83	92
Dec., 1935...	83	82	76	29.3	72	80	90	78	83	94
Jan., 1936...	80	84	76	33.1	72	80	90	78	83	94
Feb., 1936...	80	87	77	....	..	80	..	74	83	89

TABLE B.—PRICES AND PRICE INDEXES OF ILLINOIS FARM PRODUCTS

Product	Prices					Indexes: same month 1921-1929 = 100		
	Mar. average		Mar. 1935	Feb. 1936	Mar. 1936	Mar. 1935	Feb. 1936	Mar. 1936
	1910-14	1921-29						
Corn, bu.....	\$.54	\$.69	\$.78	\$.51	\$.51	113	74	74
Oats, bu.....	.38	.42	.51	.25	.25	121	60	60
Wheat, bu.....	.94	1.32	.86	.95	.95	65	71	72
Barley, bu.....	.65	.66	.77	.54	.55	117	83	83
Hogs, cwt.....	7.64	9.71	8.64	10.00	9.80	89	110	101
Beef cattle, cwt..	5.82	7.67	8.12	7.90	7.50	106	108	98
Lambs, cwt.....	6.16	11.57	7.57	9.00	8.60	65	80	74
Milk cows, head	55.00	73.00	45.44	55.00	55.00	62	78	75
Veal calves, cwt..	7.32	10.70	7.90	10.20	8.30	74	95	78
Sheep, cwt.....	4.64	6.54	4.32	3.90	4.20	66	62	64
Horses, head....	154.00	89.00	108.00	109.00	114.00	121	125	128
Butterfat, lb.....	....	.42	.30	.34	.30	71	81	71
Milk, cwt.....	1.63	2.26	1.65	1.75	1.75	73	76	77
Eggs, doz.....	.19	.23	.18	.25	.16	78	80	73
Chickens, lb.....	.11	.21	.15	.18	.17	69	87	81
Wool, lb.....	.20	.32	.18	.27	.29	56	84	90
Apples, bu.....	1.22	1.94	1.46	1.05	1.05	75	56	54
Hay, ton.....	13.95	14.35	14.23	7.80	8.20	99	54	57
Potatoes, bu.....	.78	1.30	.68	.85	.90	52	64	69
Illinois index of farm prices.....						91	87	82

¹⁻³For sources of data in tables see previous page.

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ILLINOIS FARM ECONOMICS

Department of Agricultural Economics, College of Agriculture and Agricultural Experiment Station, in cooperation with the Extension Service in Agriculture and Home Economics, University of Illinois

Urbana

May and June, 1936

Numbers 12 and 13

The Farmer's Share of the Consumer's Dollar. Farm prices for foods are directly affected by costs of transporting, processing, and distributing from the producer to the consumer. As consumers' incomes decline, the major part of this decline is reflected in lower prices to farmers, since distribution costs are relatively inflexible. With an upward movement in consumers' incomes, farm prices rise faster than costs of distribution, resulting in an increase in the farmer's share of the consumer's dollar. Facts recently assembled by the U. S. Bureau of

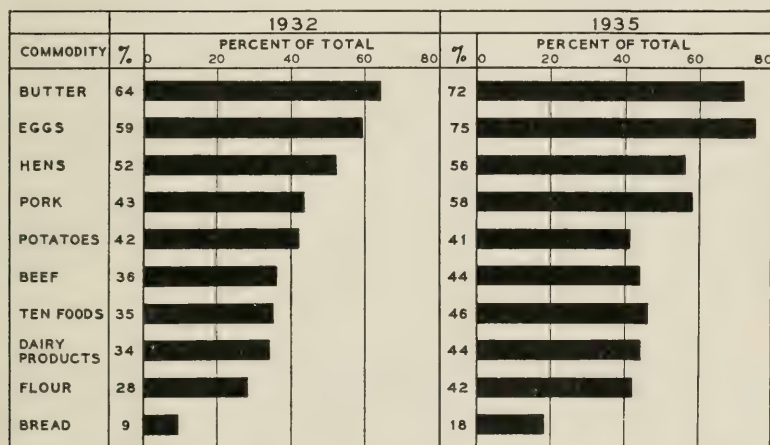


FIG. 1.—FARMER'S SHARE OF THE CONSUMER'S DOLLAR

Data for each food, except butter, from U.S.D.A. publication "The Margin Between Farm Prices and Retail Prices of Farm Foods," by Frederick V. Waugh. Data on butter from Cornell University Farm Economics.

Agricultural Economics show that from 1921 to 1935 farmers received an average of 47 percent or slightly less than half of what consumers paid for ten important foods. In 1932, the year of lowest farm prices, farmers received only 35 percent, or about one third of the consumer's dollar (Fig. 1). From 1932 to 1935 cash income to farmers increased from 4.3 billion dollars to 6.9 billions, and the farmer's share of the consumer's dollar increased from 35 to 46 percent. If continued increase occurs in consumer incomes, it is reasonable to expect that within a few years farmers will receive 50 percent of what consumers pay for food—this being the average proportion received from 1921-1929.

The farmer's share of the consumer's dollar varies widely for different foods. In general, the more direct the flow of the product from farm to ultimate consumption and the higher its value per unit, the greater the proportion which farmers receive. For example, in 1935 farmers received 72 percent, or nearly three-fourths of what consumers paid for butter, in contrast with only 18 per-

cent for bread (Fig. 1). The course of butter from production to ultimate consumption is much more direct than that of wheat and retail bread. Usually butter is churned and packed at the same plant, shipped in carload lots to a terminal market and sold to retailers. Processing, handling, and transportation costs on butter are low, compared with its value.

In contrast, marketing costs for wheat made into bread are high. These costs include: (1) assembling wheat at country elevators; (2) transporting wheat to terminal elevators and to millers; (3) grinding of wheat; (4) packaging of flour, usually in paper or cloth sacks; (5) handling and transportation charges for flour from the miller to the baker; (6) fuel, labor, space, and equipment costs of the baker; (7) costs of other bread ingredients such as shortening, milk, and yeast; (8) packaging of bread; and (9) delivery of bread to the retailers. The value of wheat is low per pound compared with the value of butterfat. With the high costs of distribution, farmers receive for wheat only a small proportion of what consumers pay for bread.

In 1935, farmers received more than half of the consumer's dollar for butter, eggs, hens, and pork, and received less than half for potatoes, beef, dairy products (including milk, butter, and cheese), flour, and bread.

One of the objectives of producers' cooperative associations is to lower marketing costs and to increase the farmer's share of the consumer's dollar. Most of the impetus by farmer groups to improve the distribution system has come within the past two decades. During this period over 90 percent of the cooperative associations now operating have come into existence. In spite of their relatively recent growth, however, cooperative marketing associations in the United States had an estimated business in the 1934-35 season of 1,343 million dollars, or about one-sixth of the total sales of farm products, while in the same year, supplies purchased by farmers' associations, were worth 250 million dollars (Table 1), or about one-eighth of the value of all farm supplies purchased.

TABLE 1.—ESTIMATED MEMBERSHIP AND BUSINESS OF FARMERS' SELLING AND BUYING ASSOCIATIONS, UNITED STATES AND ILLINOIS, MARKETING SEASON, 1934-1935

Commodity	Cooperative marketing associations					
	United States ^{1A}			Illinois ^{1B}		
	Associations	Estimated membership	Estimated business	Associations	Estimated membership	Estimated business
	<i>number</i>	<i>number</i>	<i>thousands</i>	<i>number</i>	<i>number</i>	<i>thousands</i>
Dairy products.....	2 300	750 000	\$440 000	77	40 000	\$33 560
Grain.....	3 125	580 000	315 000	419	72 000	52 000
Fruits and vegetables.....	1 082	158 000	200 000	23	1 700	570
Livestock.....	1 197	410 000	175 000	143	80 000	44 000
Cotton and products.....	305	255 000	100 000	...	...	...
Poultry and eggs.....	164	85 000	53 000	4	1 800	270
Wool and mohair.....	119	71 000	15 700	...	...	...
Nuts.....	53	14 800	11 300	...	...	...
Tobacco.....	16	50 000	7 500	...	...	...
Forage crops.....	29	6 900	1 830	1	2 280	40
Miscellaneous.....	404	109 300	23 670	8	1 850	160
Total.....	8 794	2 490 000	1 343 000	675	199 630	\$140 600
Cooperative purchasing associations						
Buying.....	1 906	790 000	\$250 000 ^{1C}	86	70 000	\$11 100

^{1A}Farm Credit Administration. ^{1B}Bulletin No. 3, 1936, p. 4. ^{1C}In letter from R. H. Elsworth, Farm Credit Administration, dated February 25, 1936. ^{1D}Bulletin No. 1, 1935, p. 4.

Illinois farmers in the marketing season of 1934-35 sold approximately \$140,600,000 worth of farm products cooperatively, or about two-fifths of their total sales of these products. During the same year, they purchased about \$11,100,000 worth of farm supplies cooperatively.

First Results of the Trade Agreement Between the United States and Canada. During the first three months after it became effective on January 1, 1936, the reciprocal trade agreement between the United States and Canada has stimulated agricultural trade moving in both directions between the two countries. Of the agricultural exports moving from the United States to Canada during January, February and March, 1936, products on which duties were reduced increased 25 percent in value over that for the same months in 1935, while other agricultural products not so affected increased but 9 percent and non-agricultural products 11 percent. Similarly, agricultural imports from Canada, excluding spirits, showed an increase of 64 percent in value of products on which duties were reduced, only 29 percent for other agricultural products and 21 percent for non-agricultural goods. Agricultural products which benefited by the agreement have increased more rapidly, therefore, than other products.

The largest movements by months of products affected by the agreement occurred in January, indicating some holding back of shipments until the act became effective. The total movement for the first three months amounted to only a small part of the year's total, hence these figures serve to indicate the direction of change rather than the volume of shipments to be expected.

Fruits and vegetables and their preparations accounted for about three-fourths of the value of shipments to Canada under reduced duties. Of these citrus fruits and fresh vegetables were outstanding. During the three months exports to Canada under reduced duties amounted to \$4,452,000 (Table 2).

TABLE 2.—U. S. EXPORTS TO CANADA OF AGRICULTURAL PRODUCTS UNDER REDUCED DUTIES, JANUARY-MARCH, 1935 AND 1936¹

Commodity	Value (1000 dollars)		Commodity	Value (1000 dollars)	
	1935	1936		1935	1936
Live animals.....	22	30	Nuts.....	30	93
Pork meats.....	75	122	Fruit juices.....	31	58
Other animal products.....	95	102	Field and garden seeds.....	142	163
Grains and grain products.....	254	312	Nursery and greenhouse stock.....	48	70
Vegetables and preparations.....	970	1,107	Miscellaneous.....	25	28
Fruits and preparations.....	1,859	2,367	Total.....	3,551	4,452

Of the imports from Canada to the United States, cattle of more than 700 pounds weight amounted to more than one-half the total imports with reduced duties. Horses accounted for nearly one-fifth, and dairy products particularly cheddar cheese, and vegetables were important (Table 3).

The heavy shipments of hay, oats and grass and forage seeds in 1935 resulted from shortages in this country because of the drouth in 1934.

Except for changes in duties on potatoes, eggs, and cut flowers, the favorable market outlets established under the trade agreement will be continued.

Meat Packing Industry Not Decentralizing. References to decentralization of the meat-packing industry continue to be heard. Actually the trend is

TABLE 3.—U. S. IMPORTS FROM CANADA OF AGRICULTURAL PRODUCTS UNDER REDUCED DUTIES, JANUARY-MARCH, 1935 AND 1936¹

Commodity	Value (1000 dollars)		Commodity	Value (1000 dollars)	
	1935	1936		1935	1936
Cattle.....	1,075	1,943	Oats.....	211	2
Poultry.....	6	25	Vegetables.....	216	484
Horses (worth not over \$150).....	115	696	Fruits.....	30	25
Dairy products.....	36	359	Grass and other forage seeds.....	230	12
Meat and breakfast foods.....	11	19	Maple sugar.....	111	186
Hay.....	314	13	Total.....	2,290	3,763

¹Data from Foreign Crops and Markets, May 25, 1936.

clearly toward centralization. Striking evidence of this is the recent acquisition by Armour and Company of a number of plants previously independent, among them the important Decker plant at Mason City, Iowa.

Financial reports made annually to the Packers and Stockyards Division, Bureau of Animal Industry, U. S. Department of Agriculture, show an increased number of concerns slaughtering livestock in the United States up to 1930. Since 1930, the number has declined.

In 1926 reports were submitted by 198 concerns slaughtering under federal inspection; in 1930 by 220 concerns; and in 1934 by 206 concerns. (In 1916, the Federal Trade Commission listed 201 concerns slaughtering under federal inspection.) Only 185 non-inspected slaughterers reported in 1926, as against 466 in 1930; but it is probable not all of these concerns reported during the earlier years of the Packers and Stockyards Association. By 1934, only 402 such concerns reported. The total number decreased from 686 in 1930 to 608 in 1934.

While a decrease in the number of slaughtering concerns might result either from sale or liquidation, it is known that numerous concerns have sold out to others already in the business.

The distribution of earnings by meat-packing companies is obviously significant. In 1933 the 10 largest concerns showed 99 percent of the total net profits reported by all slaughterers. In 1934 the 10 largest concerns showed 94.6 percent of the total net profits.

Decentralization in operation should be carefully distinguished from decentralization in ownership and control. It is doubtful if there has been any time in recent years when control of the nation's meat-packing industry was less decentralized than now.

THE AGRICULTURAL OUTLOOK

The following materials relative to the Outlook for Illinois farm products (except poultry) have been prepared by members of the Department of Agricultural Economics with the assistance of the Outlook Committee of the College of Agriculture. The Outlook for Poultry and Eggs was prepared by the Poultry Division.

The Demand for Farm Products. The demand for farm products of the United States has shown substantial further improvement during the past year. Most of that improvement was in the latter half of 1935, but rising business activity during the past two months has brought demand to a new high level for the recovery period and prospects are for its maintenance close to the present level during the summer months. For the 1936-37 marketing year as a whole demand is expected to be better than for the year now drawing to a close.

The growth of domestic demand during the past year has been due basically to the increased output of non-agricultural industries. Consumer demand for many farm products is, of course, dependent upon factory payrolls and other forms of current money income, but these are in turn dependent primarily upon the volume of industrial production and trade. On the other hand many farm products are the raw materials of industry and the demand for these is directly dependent upon industrial activity. Industrial production of manufactures and minerals combined rose from the level of 86 percent of the 1923-25 average for April 1935 to 100 percent of that average for April 1936, and various indications of business activity point to a still further increase in the month of May compared with the 1923-25 average. The Federal Reserve Board index of industrial production for the months July 1935 to April 1936 averaged 94.1 (1923-25 = 100) compared with 80.2 during the corresponding months of 1934-35.

The total money value of the national income paid out during the nine months July 1935 to March 1936 is estimated at 56 billion dollars compared with 51 billions for the corresponding nine months of 1934-35. This increase of 10 percent in national income compares with an increase of 11 percent in the cash income from farm marketings during the same period. The money value of national income paid out is perhaps the best index of domestic demand in monetary terms but the "real" demand for farm products is, of course, dependent upon the goods and services which are available to exchange for them. That these have been increased has already been indicated by the index of physical volume of production cited above. In a general way indexes of the money value of the national income paid out and of the physical volume of production and business activity move together except at times when there is a significant change in the price level. Since there has been relatively little change in the price of non-agricultural commodities over the past two years, the courses of national income and of the volume of industrial production have moved quite closely together save for the more erratic fluctuations in the latter.

Farm income has tended to vary proportionately with changes in the total income of the non-farm population. In years such as 1934 and 1935 when there was a reduction in the total output of agricultural products (as compared with previous years) there has been a marked tendency for the average level of farm product prices to rise as a result of the reduced production. This, however, has not prevented the close correspondence of the course of farm income and non-farm income. For the United States as a whole the changes in quantities produced tend to be counterbalanced by the price changes which result from them. Other changes in prices and changes in the total cash income from the sale of farm products are dependent mostly upon changes in the conditions of demand. Consequently prospects are that farm income for the United States as a whole from 1936 crops will show substantial improvement with the increase in domestic demand which is expected. This is not necessarily true for individual states, however. Thus, if Illinois should have large crops and other states small ones, the income of Illinois farmers would be increased even if there were no change in general demand conditions.

Prices of Illinois farm products have recently averaged somewhat lower than they were a year ago. Thus in May they averaged 80 percent of the 1921-1929 May average compared with 91 percent a year earlier. For the United States the corresponding figures are 74 for May 1936 and 77 a year earlier. Prices of farm products may average somewhat lower during 1936-37 than during 1935-36 as a result of increased supplies of some farm products, especially of meat animals. Illinois farmers may expect somewhat lower prices for hogs and cattle during the coming year, and the great importance of these to Illinois farmers may mean a slightly lower total income from the sale of farm products.

Throughout most of the recovery period the weakest point has been the low level of activity in the construction industries. These have, however, furnished considerable encouragement during the past year. During April 1936 the index of value of construction contracts awarded, seasonally adjusted, stood at 55 (1923-25 = 100) of the 1923-25 average compared with 30 a year earlier, and for the ten months July 1935 to April 1936 it averaged 47 percent compared with 37 for the corresponding months of 1934-35.

With the single exception of December 1935 when there was a large volume of publicly financed contracts, the April total of building contracts awarded exceeded that of any month since October 1931. Residential building contracts awarded in April advanced to the highest level since June 1931. However, the most pronounced gain was shown by non-residential contracts. Commercial and

factory building contracts, which have seldom been as high as \$25,000,000 in any month since 1931, rose to \$45,000,000 in April.

The outlook for the building industry and other capital goods industries is perhaps the least certain of any part of business activity affecting the outlook for domestic demand. Prospective building activity is dependent on the one hand upon building costs which are not very flexible and upon the demand for houses, factories and equipment. In case of residential building there seems to be fairly definite prospect that the revival will continue during the next year. Increased consumer income is resulting in higher rents and fewer vacancies since fewer families now need to "double up" to reduce expenses. Factory and railroad equipment business is dependent quite largely upon opinions as to business prospects in the immediate future and railroads have this year been buying more heavy equipment than since 1930. Commercial and factory buildings especially are largely dependent upon the outlook for business profits and opinion as to these fluctuates rather violently. Nevertheless it is significant that during the first quarter of 1936 earnings of 254 industrial and commercial concerns are reported by the Federal Reserve Bank of New York to have increased from \$150,000,000 in 1935 to \$223,000,000 in 1936. In spite of recent tax legislation the increased business profits would appear to supply incentive for further expansion.

In addition to the increase in the domestic demand for farm products there has apparently been some increase in foreign demand. For the months July 1935 to April 1936 the total value of agricultural products exported from the United States amounted to \$682,000,000 compared with \$588,000,000 for the corresponding months of 1934-35. Although the value of products exported is not an altogether satisfactory measure of export demand, it is, nevertheless, indicative of some increase in the foreign demand for our agricultural products. Among the most important groups of items showing increases were cotton, tobacco and fruits. There were small declines in the value of exports of meats and meat products and grain.

Prospects of the foreign demand for farm products are perhaps less certain than those for the domestic demand. There seems to be no immediate prospect of any sudden reversal of policy of foreign countries to restrict imports of American agricultural products. Nevertheless the long-time effect of improving business conditions in foreign countries and of the reciprocal trade agreements which the United States is making with other countries seems likely to be toward a gradual increase in the foreign demand for products of American agriculture. Such an increase in foreign demand for our agricultural products and in exports will, of course, also be accompanied by increases in imports of both agricultural and non-agricultural products into the United States.

Crops. A substantial increase in the acreage of crops should be expected in the United States this year over that harvested in 1935, according to the March 1 plans of farmers who report to the United States Department of Agriculture. Weather conditions in Illinois have enabled farmers to plant the acreages desired and indications are that they have increased the acreage of corn materially, but have decreased the acreage of soybeans. The estimated acres of oats and wheat to be harvested in 1936 in Illinois are almost identical with those harvested in 1935.

Corn. March 1 intentions to plant indicated about 99 million acres of corn for the United States for 1936, as compared with approximately 93 million acres for 1935 and an average of almost 101 million acres for the period 1927-1931 (Table 4).

TABLE 4.—UNITED STATES ACREAGE AND AVERAGE FARM PRICE FOR CORN, OATS, WHEAT AND SOYBEANS FOR GRAIN (THOUSAND ACRES)

Year	Corn		Oats		Wheat		Soybeans ¹	
	Acreage	Farm price	Acreage	Farm price	Acreage	Farm price	Acreage	Farm price
Aver. 1927-31.....	100 706	\$. 77	39 673	\$. 40	60 388	\$. 93	1 140	\$1.53
1932.....	108 668	.28	41 420	.18	57 114	.39	1 153	.64
1933.....	103 260	.36	35 701	.25	47 910	.58	1 145	1.11
1934.....	87 795	.61	30 172	.41	42 249	.80	1 216	1.02
1935.....	92 727	.77	39 714	.40	49 826	.86	2 379	.78
1936 ²	98 775	.56	39 785	.26	58 372	.90	2 111 ³	.78

¹For grain only. ²Price is average of first four months of 1936. ³Estimated.

The soil conservation program apparently has not brought about any material reduction in the acreage of corn planted in 1936 in Illinois (Table 5). As a result of poor seed there have been many poor stands. Up until the first of June there was considerable replanting, for the most part with corn, the replanting being early enough to give the corn a fair chance to mature. In the central part of the state farmers have indicated plans for as large an acreage in 1936 as for the average of the years 1932 and 1933, when the corn acreage was very large. Less than 93 million acres of corn were harvested in the United States in 1935, and yet the Illinois farm price for this crop of corn ranged from 40 to 55 cents a bushel. An acreage for 1936 of anything like 100 million acres, with an estimated 5 percent increase in the numbers of livestock will undoubtedly result in a relatively low price of corn providing average yields are secured.

Oats. United States intended oats acreage of almost 40 million acres is very close to the 1935 acreage harvested and almost identical with that for 1927-1931. In Illinois, the intended acreage is almost the same as for 1935, and considerably less than for the period 1927-1931.

Wheat. The May first report on wheat indicated 35.9 million acres of winter wheat for harvest, compared with 31 million in 1935 and a 39.5 million acre average for the period 1923-1932; and 22.4 million acres of spring wheat compared with 18.8 million acres in 1935 and a 20.4 million acre average for the period 1928-1932. This would give a combined acreage for harvest in 1936 of about 58 million acres, compared with 50 million acres for 1935 and a 60 million acre average for the period 1927-1931. The Hessian fly has already caused considerable abandonment in southern Illinois and will probably cause further damage to Illinois wheat between June 1 and the time of harvest. In some fields the chinch bug infestation is heavy enough to cause damage providing the weather is dry between now and harvest time.

Soybeans. March 1 indications were for a harvested acreage of 4.6 million acres of soybeans for both hay and seed in the United States, compared with

TABLE 5.—ILLINOIS ACREAGE AND AVERAGE FARM PRICE FOR CORN, OATS, WHEAT AND SOYBEANS FOR GRAIN (THOUSAND ACRES)

Year	Corn		Oats		Wheat		Soybeans ¹	
	Acreage	Farm price	Acreage	Farm price	Acreage	Farm price	Acreage	Farm price
Aver. 1927-31.....	8 965	\$. 72	4 236	\$. 37	2 006	\$1.01	263	\$1.53
1932.....	9 353	.22	4 439	.15	1 652	.41	315	.38
1933.....	8 324	.32	4 039	.23	1 721	.64	290	.65
1934.....	7 159	.58	3 029	.39	1 854	.85	542	1.00
1935.....	7 589	.74	3 847	.35	1 849	.88	1 213	.88
1936 ²	8 272	.51	3 809	.24	1 812	.94	1 100 ³	.75

¹For grain only. ²Price is average of first four months of 1936. ³Estimated.

5.2 million acres in 1935. In Illinois 1.6 million acres were indicated for 1936, compared with 1.8 million acres in 1935. In this state there is an exceptionally good stand of other legumes as compared with recent years; hence there will be less demand for soybean hay, and therefore a larger percentage than normal of the soybean acreage will be harvested for seed. Several unusual factors accounted for the abnormal increase in the acreage of soybeans in 1935, and since these factors are not present in 1936 a reduction occurred in the acreage of soybeans.

Stocks of grain. Farmers had on their farms April 1 about 776 million bushels of corn which was about the average amount held for the period 1928-1932, and 340 million bushels more than a year ago. (Table 6.) Stocks of wheat on farms totaled 97 million bushels, compared with 93 million bushels a year earlier and a 127 million bushel average for the period 1928-1932. Oat stocks, on the other hand, were much larger than normal, totaling 495 million bushels on April 1, compared with a 389 million bushel average for the period 1928-1932.

TABLE 6.—GRAIN STOCKS ON FARMS, UNITED STATES, APRIL 1 (THOUSAND BUSHEL)

	Average, 1928-1932		1935		1936	
	Percent of previous crop	1,000 bushels	Percent of previous crop	1,000 bushels	Percent of previous crop	1,000 bushels
Corn.....	35.6	757 030	39.5	436 337	40.3	776 112
Wheat.....	14.3	127 335	18.8	93 456	16.1	97 053
Oats.....	32.7	389 052	39.3	206 541	41.4	494 666

Commercial grain stocks were very low for corn and wheat but quite high for oats. On April 11 there were less than 8 million bushels of corn in commercial stocks, compared with 17.5 million bushels a year ago and a 35 million bushel average for the period 1931 to 1934. (Table 7).

TABLE 7.—COMMERCIAL GRAIN STOCKS REPORT, UNITED STATES, APRIL 11, 1936 (THOUSAND BUSHEL)

	Corn	Wheat	Oats
Total week ending April 11, 1936.....	7 768	47 896	37 746
Total week ending April 11, 1935.....	17 530	46 981	13 409
Average, 1931-1934.....	35 026	159 317	22 822

Hay. Stocks of hay on farms in the United States on May 1 totaled 13.3 million tons, compared with 4.5 million tons in 1935 and a 9.7 million ton average for the period 1923-1932. The condition of tame hay on May 1 was 78 percent of normal, compared with 75 percent a year ago and 83 percent for the period 1923-1932.

At present the indications point to an acreage of grain crops larger than was harvested last year and about the same as the average of the five-year period 1928-1932; with less than average numbers of livestock to be fed from this crop, a normal production would result in abundant feed supplies as compared with livestock numbers.

Hogs. The available supply of pork and pork products is moving freely into consumption, and prices have held up well notwithstanding a 15.9 percent increase in total liveweight of hogs slaughtered during the first three months of 1936 compared with 1935. Stocks of pork in storage on May 1 were but 64.8 percent of the May 1, 5-year average, and had increased less than 2 percent since April 1. Lard stocks on May 1 were 74 percent of the May 1, 5-year average and were about 8.4 percent above those of April 1.

For the first quarter of 1936, United States cured pork exports were 60.9 percent, canned pork 72.3 percent, and lard exports 65.7 percent of those for the

first quarter of 1935. Pork imports were reported as 7 million pounds for the three months compared with one million pounds a year earlier.

Federally inspected hog slaughter, October 1934 through September 1935 was 30.7 million head. Slaughter October-April a year ago was 21.8 millions, and for 1935-36 was 18.4 millions. If the total for this hog marketing year equals that of last year, the slaughter for the remaining months, May through September, must reach 12 million head, or 40 percent above the same months last year. This appears likely since the 1935 fall pig crop which is marketed during this period was 30 percent larger than a year earlier; inspected slaughter in May was 18.7 percent and in the first week of June for 8 cities was nearly 25 percent above last year, and farmers are pushing spring pigs for an early market.

The December 1 Government Pig Crop Report estimated 6,220,000 sows to farrow in the spring of 1936. If pigs raised average 5.9 per litter, the total spring pig crop would be 36.7 million head, or 21 percent above the 30.4 millions in 1935. Since heavy losses were reported on early 1936 litters, a 15 to 18 percent increase may be about in line. The June 1 Pig Crop Report will tell the story. With the hog-corn price ratio about 16, compared with 10 a year ago, increased production may be expected.

European countries are also increasing hog production—6 percent more hogs and 14 percent more bred sows than last year being reported for Denmark, Germany and The Netherlands. Any marked expansion of our pork and lard exports appears unlikely.

Heavy losses of early spring pigs point toward the usual summer rise in prices unless offset by more than the usual amount of early marketing. Packers may be expected to discount the definite prospect of month-to-month increases in supplies, at least from August on, and to restrict early winter storing of pork. Lower prices are in prospect in the fall as a result of increased domestic production.

Beef Cattle. During the first quarter of 1936 cattle prices declined under seasonal influences and a 12.7 percent increase over 1935 in total live weight of cattle slaughter (about 495,000 head).

The April price of all grades of slaughter steers at Chicago averaged \$2.68 per cwt. lower in 1936 than in 1935, but all weights of stockers and feeders averaged 75 cents per cwt. higher. Despite this narrower spread the January to May shipments of stockers and feeders from 12 markets were only 13 percent (about 75,000 head) below 1935. During four weeks of May, they sent out 52,300 stockers and feeders compared with 86,300 a year ago, a decline of 27.8 percent. During the first 4 or 5 months of the year the usual price trend is downward for the better grades and up for the lower grades. Chicago wholesale beef prices (B.A.E.) for Friday, June 3 were as follows:

	<i>Steer carcass 500-600 lbs.</i>	<i>Cow Carcass</i>
Choice grade.....	\$13.50	\$.....
Good grade.....	12.50	11.25
Medium grade.....	11.75	10.75
Common (plain) grade.....	11.25	10.25

This narrow price range (cow beef one cent a pound below steer beef, and poor steer beef 2¼ cents below the best) resulted despite the fact that during the first four months of 1936 the Chicago market sold 5,500 fewer choice and prime steers out of first hands, 8,100 more good steers, and 33,600 more medium and common steers than in 1935. The situation suggests a lack of proper distribution and recognition of quality. Greater use of government branding, which identifies quality until meat reaches the consumer, should materially improve the

present price situation for both producers and consumers. Government grading for the first quarter of 1936 increased 50 percent over the same period a year ago, but covered less than 8 percent of beef consumption.

Total beef in storage—frozen, cured and in process of cure, was 65 million pounds May 1, and 79.5 million pounds April 1. With increased slaughter beef is moving into consumption.

Beef imports into the United States (mostly canned beef) in the first quarter of 1936, was 24 million pounds, an increase of 33.8 percent above the same period in 1935. Imports, however, constituted only about 2 percent of quarterly beef consumption.

Cattle on feed, April 1 (B.A.E. Report) was 28 percent (260,000 head) more than in 1935, but, except for 1935, was the smallest number in more than ten years. Feeders' intentions were to market more than usual of the 1936 feedings before July 1. Similar market intentions were indicated by an annual survey among their cattle feeder patrons conducted by the Producers Commission Association, Chicago. (Table 8). This survey covered 5,335 cars in 1935 and 7,131 in 1936, heifers making up 10.6 and 16.5 percent for the two years.

TABLE 8.—PERCENTAGE TO MARKET EACH MONTH

	Year	Apr.	May	June	July	Aug.	Sept.
All cattle on feed.....	1936	15.1	18.6	20.2	16.8	15.1	14.2
	1935	10.7	15.2	20.0	19.6	18.5	16.0
Steers only.....	1936	15.0	17.3	18.8	17.3	15.8	15.8
	1935	10.4	15.3	17.9	20.0	19.4	17.0

For April, May and June relatively heavier monthly marketings both for all cattle and for steers were indicated than last year, but lighter for July, August and September. It seems probable that marketings have been delayed somewhat more than indicated by these reports of intentions, due to slower gains this year and unsatisfactory prices. During the late summer and fall a normal seasonal advance for better grades is likely after the present congested market has cleared.

The occurrence of serious drouth over important areas of the range country or corn-belt states could change the situation quickly.

Lambs. Despite a reported 14 percent increase in total liveweight of sheep and lambs slaughtered in the United States during the first quarter of 1936 compared with 1935, and a 9 percent increase over the first quarter 5-year average, the Chicago April price of good-choice lambs averaged about \$2.90 above a year ago. Choice lamb carcasses, New York, 38 pounds down, averaged \$4.11 per hundredweight higher than in April, 1935. The index of retail lamb price, New York, was 67.1 this April; 60.9 last April.

The early lamb crop was reported to be 6 percent larger than last year, but heavy losses occurred, since weather and feed conditions have not been favorable. The B. A. E. reports indicate a larger than usual proportion of this year's lamb crop will come to market as feeders. As a result, market movement of early lambs is expected to be light in both May and June, with some accumulation of shipments likely in late June and July. As usual, Illinois lambs should be marketed as early as they can be made ready, topping out as finished.

Dairy Products. Production of the principal manufactured dairy products during the first quarter of 1936 was 7.6 percent greater than in the same months of 1935, according to reports from the U. S. Bureau of Agricultural Economics. This marked increase compared with 1935 is not expected to continue thruout the remainder of the year. In fact, pasture conditions on June 1

were poor, and it is now dry in many important dairy sections. On June 6, 1936, the average wholesale price of 92-score butter in Chicago was $27\frac{3}{4}$ cents per pound, or $3\frac{1}{4}$ cents per pound higher than a year ago. During the coming months butter prices will probably average higher than in the summer of 1935.

The demand for dairy products has continued to improve with increases in consumer incomes, and larger quantities have moved into the channels of trade at higher prices than a year ago. From April 22 to May 8, the AAA purchased about 1,300,000 pounds of butter for relief purposes.

Poultry and Eggs. On the basis of figures compiled by the U. S. Crop Reporting Board, the average production per hundred hens in farm flocks as of May 1, 1936 was the highest that has been reported for May 1 during the period for which records are available. The average number of layers in farm flocks on that date was slightly larger than a year earlier, so that the total production of eggs was about 4 percent larger than on May 1, 1935. The peak of egg production for the current season has, of course, been reached and passed at this writing (June 5) but because of curtailed production during February and March it is not unlikely that the seasonal decline from now until mid-summer may be smaller than that of a year earlier.

Receipts of eggs at the four markets of Boston, Chicago, New York, and Philadelphia from January to April, inclusive, were about 10 percent above the corresponding period last year. Receipts of dressed poultry at the four markets during the same period showed no change from the previous year.

United States cold storage holdings of shell eggs on May 1, 1936 amounted to three million cases, or 23 percent below the corresponding figure last year, and 30 percent below the May 1 five-year average for 1931-1935. Holdings of frozen eggs were equivalent to nearly two million cases, or almost identical with the five-year average figure for May 1.

Total holdings of frozen poultry on May 1, 1936 amounted to 49 million pounds, a decrease of 20 percent from May 1, 1935, but only 4 percent below the five-year average total for 1931-1935. It is worth noting that holdings of broilers on May 1, 1936 amounted to 3.6 million pounds in contrast to 8.7 million pounds last year and a five-year average of 6.4 million pounds for 1931-1935.

Reports from 500 hatcheries thruout the United States, each with a minimum capacity of 10,000 eggs, indicate that total hatchings from January to April, inclusive, exceeded those of the corresponding period last year by 25 percent. The total number of chicks booked for May delivery or later by these same hatcheries was 44 percent greater than that on the same date last year. It is perhaps significant that, of the eleven states which had 20 or more hatcheries included in the report, Illinois showed the lowest increase in hatchings for April, 1936 over April, 1935. The increase for Illinois was 6 percent, as compared, for example, with 43 percent for Indiana, and 42 percent for Kansas.

The 1936 season in Illinois has been favorable for raising chickens. If 1936 proves to be a good crop year so that feed prices are not unduly high, early-hatched pullets should be good property to own, whereas it may be difficult to more than break even on egg receipts when depending on late-hatched or poorly grown pullets. The effect of egg production by late-hatched pullets is not usually apparent until after the first of January; if large numbers of such pullets are carried over in laying flocks low spring egg prices may easily result.

Illinois Orchard Fruits. Present prospects are for a light crop of apples in Illinois—not more than one-fourth to one-third of a normal crop, taking the state as a whole and including all varieties. The heavy crop in many localities last year, combined with poor foliage development resulted in a poor set of buds

and consequently light bloom in 1936. Several frosts during the period of bloom and fruit-setting further reduced the prospective yield.

The Illinois peach crop this year is restricted to a few counties in the extreme southern end of the state, and even here there will be only about 10 percent of a full crop. The pear crop of the state will also be light, on account of severe frosts at blossoming time.

TABLE A.—INDEXES OF BUSINESS CONDITIONS, SAME MONTH 1921-1929 = 100

	Whole-sale prices of all commodities (U. S.) ¹	Farm prices		Cash income to Illinois farmers		Prices paid by farmers for commodities bought (U. S.) ¹	Purchasing power of income to Illinois farmers	Factory payrolls in the United States ⁴	Cost of living in the United States ⁵	Purchasing power of factory payrolls
		Illinois ²	United States ³	Millions ¹	Indexes ¹					
1929.....	97	109	103	\$548.6	108	100	108	112	99	113
1930.....	88	95	89	459.7	91	96	95	90	95	95
1931.....	74	65	61	309.5	61	82	74	68	86	79
1932.....	66	44	46	228.7	45	71	63	48	77	62
1933.....	67	47	49	276.7	55	70	79	49	74	66
1934.....	76	64	64	306.1	60	80	75	64	78	82
1935.....	82	88	76	362.1	72	82	88	72	82	88
Apr., 1935...	82	94	80	34.3	70	83	84	72	83	87
Jan., 1936....	80	84	76	33.1	72	80	90	78	83	94
Feb., 1936....	81	87	77	28.9	72	80	90	74	83	89
Mar., 1936....	80	82	74	31.1	73	79	92	77	83	93
Apr., 1936....	81	84	75	....	...	79	...	80	84	95

TABLE B.—PRICES AND PRICE INDEXES OF ILLINOIS FARM PRODUCTS

Product	Prices					Indexes: same month 1921-1929 = 100		
	May average		May 1935	April 1936	May 1936	May 1935	April 1936	May 1936
	1910-14	1921-29						
Corn, bu.....	\$.59	\$.74	\$.80	\$.52	\$.57	108	74	77
Oats, bu.....	.39	.42	.41	.23	.23	98	55	55
Wheat, bu.....	.94	1.29	.87	.91	.88	72	72	68
Barley, bu.....	.65	.67	.59	.50	.50	88	76	75
Hogs, cwt.....	7.42	9.30	8.50	10.00	9.00	91	106	97
Beef cattle, cwt...	6.02	7.90	8.30	7.60	7.10	105	99	90
Lambs, cwt.....	6.28	11.83	7.40	9.30	9.30	63	80	79
Milk cows, head	54.00	72.00	52.00	54.00	55.00	72	76	76
Veal calves, cwt..	6.86	9.79	7.60	8.50	8.10	78	86	83
Sheep, cwt.....	4.72	6.38	3.70	4.40	4.10	58	66	64
Horses, head....	153.00	89.00	110.00	118.00	117.00	124	133	132
Butterfat, lb.....	...	.37	.26	.30	.25	70	74	67
Milk, cwt.....	1.15	2.06	1.45	1.60	1.50	70	73	73
Eggs, doz.....	.16	.22	.21	.16	.18	95	72	79
Chickens, lb.....	.12	.22	.16	.18	.17	75	80	78
Wool, lb.....	.19	.32	.16	.27	.27	50	85	84
Apples, bu.....	1.30	2.01	1.35	1.00	1.00	67	48	50
Hay, ton.....	14.31	14.37	14.30	7.70	8.00	100	54	56
Potatoes, bu.....	.82	1.34	.60	.90	.95	45	67	71
Illinois index of farm prices.....						91	84	80

¹⁻⁵For sources of data in tables see note below.

Original data for Tables A and B were obtained from the following sources: (1) Bureau of Agricultural Economics, U.S.D.A. Beginning with January, 1936, cash income to Illinois farmers includes the revised estimates of the Bureau. (2) Illinois Crop Reporting Service, Illinois State Department of Agriculture, and U. S. Department of Agriculture, cooperating; (3) Monthly data include an average of current month with eleven preceding months; (4) Federal Reserve Board; (5) National Industrial Conference Board. For explanations of computations, see Number 2, July, 1935.

ILLINOIS FARM ECONOMICS

Department of Agricultural Economics, College of Agriculture and Agricultural Experiment Station, in cooperation with the Extension Service in Agriculture and Home Economics, University of Illinois

Urbana

July, 1936

Number 14

Crop Conditions. The widespread, abnormally hot weather during the first half of July, coupled with the subnormal rainfall over wide areas through May, June and July has changed markedly the outlook for farm products from that of the middle of June as described in the previous issue.

The extent of direct crop damage attributable to the heat and drouth cannot be measured accurately at this time. While this damage is serious the conditions have also favored the development of chinch bugs and grasshoppers, which are daily adding to the toll in affected areas. The damage to corn varies greatly depending chiefly upon time of planting. The growth of soybeans is being seriously retarded, thus threatening the productive capacity of the plants.

Even with late harvested crops in serious condition, pastures bare and gardens burned, Illinois farmers yet have an advantage over farmers in some other states where farming is less diversified. Early reports indicate that both yields and quality of winter wheat are generally good, the quality of oats and barley good, but yields only fair.

Unfortunately the effects of drouth and insect damage are never distributed evenly; hence the farmer who suffers a partial loss of his crop can never be sure of a price advantage which will offset the loss in yield. As between individual farms, however, the one which has had superior management in its organization and handling usually has the greater staying power in the face of handicaps.

INDICATED PRODUCTION IN ILLINOIS, 1936^a

	Average 1928-32	1935	1936	1936 percent of 5 yr. ave.
Winter wheat (1000 bu.).....	30 674	29 696	33 116	108
Oats (1000 bu.).....	152 009	106 372	87 375	57
Tame hay (1000 tons).....	3 002	3 681	3 187	106
Apples (1000 bu.).....	4 545	7 624	1 802	40
Peaches (1000 bu.).....	1 751	3 285	360	21
Pears (1000 bu.).....	446	659	264	51

^aFrom U. S. D. A. Crop Report, July 1, 1936.

Estimates of total wheat production for 1936 are still uncertain because of severe damage to the spring wheat crop. Winter wheat estimates for 1936 exceed the five-year average production (1928-32) in Illinois, Indiana, Ohio, Iowa, and Missouri, but are only 82 percent of average for the entire country, and 73 percent in Kansas, the heaviest producing state. Oats production for Illinois is indicated at 57 percent and for the United States at 67 percent of average. With the large carryover the available supply is equal to apparent consumption and seed use of the past year. Indicated production of tame hay for Illinois is 106 percent and for the United States 96 percent of average, although continued dry hot weather has likely reduced prospects of later cuttings. Because of weather conditions since that date the July 1 indications for the corn crop of 53 percent of normal for Illinois and 88 percent for the United States have already been materially reduced.

GRAIN STOCKS ON HAND, JULY 1 (THOUSAND BUSHELS)^a

	Illinois			United States		
	Average 1928-32	1935	1936	Average 1928-32	1935	1936
Corn.....	65 426	34 122	65 939	374 012	207 770	392 181
Oats.....	13 513	6 221	20 211	148 516	71 354	247 520
Wheat.....	1 243	2 191	902	51 245	44 339	43 760

^aFrom U. S. D. A. Crop Report, July 1, 1936.

Fruit prospects for the United States are better than those for Illinois. Apples promise a 40-percent crop in Illinois, but 62 percent for the country; peaches 21 and 73 percent; and pears 51 and 101 percent, respectively.

Livestock Conditions. Drouth stricken territory is very spotted and the situation changes from day to day. For a comprehensive and accurate appraisal one would need a U. S. map showing rainfall deficiency and crop condition by counties. Even then daily revisions would be required if the situation were to be followed closely. The following statements are made as of July 15 as to the livestock situation:

Cattle. More cattle and calves were slaughtered under federal inspection in June this year than in 1935—27.5 percent of cattle; 17.7 percent of calves. That put more load on the wholesale beef markets at the very time that intolerable heat seriously curtailed meat buying by the public. Marketings of fed cattle increased—higher corn prices, dry pastures, intense heat, flies, and water shortage. Results have not been happy for cattle feeders. Heavy receipts now mean less finished cattle a few weeks hence, and it is expected that wholesale beef prices will snap upward as lower temperatures reappear.

While newspaper reports give the impression of general drouth, important cattle range sections are not affected. Texas, Arizona, much of New Mexico and the inter-mountain regions are in good shape. In the cattle country the most serious drouth areas are reported in eastern Montana, the Dakotas, northwestern Nebraska and northern Wyoming.

Forced marketings of drouth-stricken cattle have not been large, but some desirable beef breeding cows with calves have been sacrificed from areas most affected. The Department of Agriculture has now arranged to support the public cattle markets wherever drouth cattle appear in sufficient numbers to depress cattle prices—the Department buying such cattle and contracting with packer to slaughter and process them. The beef will be turned to relief agencies. There is little need, therefore, to worry that drouth cattle will upset the market.

Prices of stocker and feeder cattle have eased, but no price demoralization has appeared. Some corn-belt feeders, having feed and water available, are filling a part of their feeder requirements during this period of uncertainty. It is a good time to maintain close contact with representatives on the markets as regards replacement cattle.

Sheep. With the exception of eastern Montana, western Dakotas, and an important portion of Wyoming, drouth has not seriously affected the range sheep country. Yet the drouth is definitely affecting lamb marketings—in lower quality of lambs and in reduced tonnage due to lighter weights.

Most of Kentucky has been very dry and its spring lamb crop, a big source of choice lambs at this season, has suffered. Probably at least half the Kentucky lambs have been marketed. The quality of the rest will not be good.

Market men report that hot weather coupled with dried pastures, has taken the bloom and sappiness from spring lambs, a tendency to lack of finish—even

woodiness—being common. Lambs are uneven and practically every lot, from whatever point of origin, requires close sorting; choice lambs are not plentiful.

A leading lamb order buyer at Chicago makes a statement that should interest corn-belt sheepmen as follows: "You recall the severe drouth of 1934—yet the native lambs came better that season than any year I recall. Why? Possibly because pastures completely failed, then as rains came and green grass reappeared the lambs ate both dry and green feed—not getting too much washy new grass; also farmers knew their lambs were not good, so they fed them grain and their lambs came good."

It is reasonable to expect that the price spread between "choice" and "just good" lambs will widen. Illinois sheepmen may find it paying to give their lambs enough grain to make them choice before sending them to market.

The 1936 market lamb receipts are expected to show a material increase in percentage of feeder lambs. This is a result of drouth in many territories; in others it results from unfavorable weather at lambing time, with lambs getting off to a bad start. Market men report this latter condition for the Pacific Northwest, even tho summer range conditions are excellent in that territory.

Speculators are reported to have contracted big strings of lambs—8 cents on the range being a frequently mentioned price—and are not too happy over the present outlook. This practice is not to the interest of corn-belt lamb feeders and the 1936 season may afford them an opportunity to show their nonapproval.

With prospects definitely favoring increasing proportions of feeder lambs in lamb marketings, feeders need be in no hurry to fill their requirements; they will find it definitely to their advantage to keep in touch with representatives on the public markets. It may well be that the most favorable source of feeder lamb supply will be from those markets this season.

Federally inspected slaughter of sheep and lambs numbered nearly 8 percent less in June, 1936, than a year earlier.

Hogs. Drouth has not greatly affected hog marketings as yet, either in numbers or quality. Nearly 51 percent more hogs were slaughtered under federal inspection this June than a year earlier—2,758,585 vs. 1,828,279. Packing sows have been marketed in large numbers—a thoroly sound procedure in view of current hog prices and increasing hog supplies.

The June Pig Crop Report. The 1936 spring pig crop is 29 percent above that of 1935, and a corresponding increase of 14 percent in sows to farrow this fall, indicating a total increase of about 24 percent, according to the June pig survey of the United States Department of Agriculture. The 1935 pig crop, however, was very small, and the indications for 1936 are still 20 percent short of the average of 1932 and 1933. For Illinois spring pigs increased 24 percent over 1935, and fall farrowings promise a 19 percent increase. As compared with 1932-1933, spring pigs are 25.5 percent and fall farrowings 30 percent short.

Heaviest percentage increases in spring pigs by areas were West North Central, 40.7; Western, 38.3; South Central, 24.1; East North Central, 19.1; North Atlantic, 17.9; and South Atlantic, 9.4. The largest increases were made in the area where the drouth of 1934 caused greatest liquidation.

The immediate effect of the drouth is to raise corn prices and to narrow the corn hog ratio. Over a longer period the situation may materially affect hog marketings if feed shortage forces marketing of spring pigs at light weights or reduces fall farrowings.

Original data for Tables A and B were obtained from the following sources: (1) Bureau of Agricultural Economics, U.S.D.A. Beginning with January, 1936, cash income to Illinois farmers includes the revised estimates of the Bureau. (2) Illinois Crop Reporting Service, Illinois State Department of Agriculture, and U. S. Department of Agriculture, cooperating; (3) Monthly data include an average of current month with eleven preceding months; (4) Federal Reserve Board; (5) National Industrial Conference Board. For explanations of computations, see Number 2, July, 1935.

TABLE A.—INDEXES OF BUSINESS CONDITIONS, SAME MONTH 1921-1929 = 100

	Wholesale prices of all commodities (U. S.) ¹	Farm prices		Cash income to Illinois farmers		Prices paid by farmers for commodities bought (U. S.) ¹	Purchasing power of income to Illinois farmers	Factory payrolls in the United States ⁴	Cost of living in the United States ⁵	Purchasing power of factory payrolls
		Illinois ²	United States ¹							
				Millions ¹	Indexes ³					
1929.....	97	109	103	\$548.6	108	100	108	112	99	113
1930.....	88	95	89	459.7	91	96	95	90	95	95
1931.....	74	65	61	309.5	61	82	74	68	86	79
1932.....	66	44	46	228.7	45	71	63	48	77	62
1933.....	67	47	49	276.7	55	70	79	49	74	66
1934.....	76	64	64	306.1	60	80	75	64	78	82
1935.....	82	88	76	362.1	72	82	88	72	82	88
May, 1935...	82	91	77	32.3	72	83	87	70	82	85
Feb., 1936...	81	87	77	28.9	72	80	90	74	83	89
Mar., 1936...	80	82	74	31.1	73	79	92	77	83	93
Apr., 1936...	81	84	75	36.4	73	79	92	80	84	95
May, 1936...	81	80	74	39.7	75	79	95	81	84	96

TABLE B.—PRICES AND PRICE INDEXES OF ILLINOIS FARM PRODUCTS

Product	Prices					Indexes: same month 1921-1929 = 100		
	June average		June 1935	May 1936	June 1936	June 1935	May 1936	June 1936
	1910-14	1921-29						
Corn, bu.....	\$.61	\$.78	\$.79	\$.57	\$.58	101	77	74
Oats, bu.....	.40	.42	.36	.23	.22	86	55	52
Wheat, bu.....	.91	1.24	.78	.88	.82	63	68	66
Barley, bu.....	.65	.67	.55	.50	.49	82	75	73
Hogs, cwt.....	7.32	9.02	9.00	9.00	9.40	100	97	104
Beef cattle, cwt..	6.02	7.96	8.20	7.10	7.20	103	90	90
Lambs, cwt.....	6.28	11.90	7.30	9.30	9.50	61	79	80
Milk cows, head	53.00	72.00	53.00	55.00	57.00	74	76	79
Veal calves, cwt..	7.02	9.90	7.30	8.10	8.20	74	83	83
Sheep cwt.....	4.16	5.64	3.30	4.10	3.40	58	64	60
Horses, head....	153.00	88.00	106.00	117.00	117.00	120	132	133
Butterfat, lbs....	...	.36	.22	.25	.26	61	67	72
Milk, cwt.....	1.07	2.01	1.35	1.45	1.45	67	70	72
Eggs, doz.....	.16	.22	.20	.18	.18	91	79	81
Chickens, lb.....	.11	.21	.16	.17	.17	75	78	80
Wool, lb.....	.19	.33	.20	.27	.30	60	84	91
Apples, bu.....	1.56	2.31	1.35	1.00	1.15	58	50	50
Hay, ton.....	14.25	13.92	13.30	8.00	7.50	96	56	54
Potatoes, bu.....	.91	1.46	.60	.95	1.80	41	71	123
Illinois index of farm prices.....						89	80	82

¹⁻⁵For sources of data in tables see previous page.

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URBANA, ILLINOIS

PENALTY FOR PRIVATE USE TO
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ILLINOIS FARM ECONOMICS

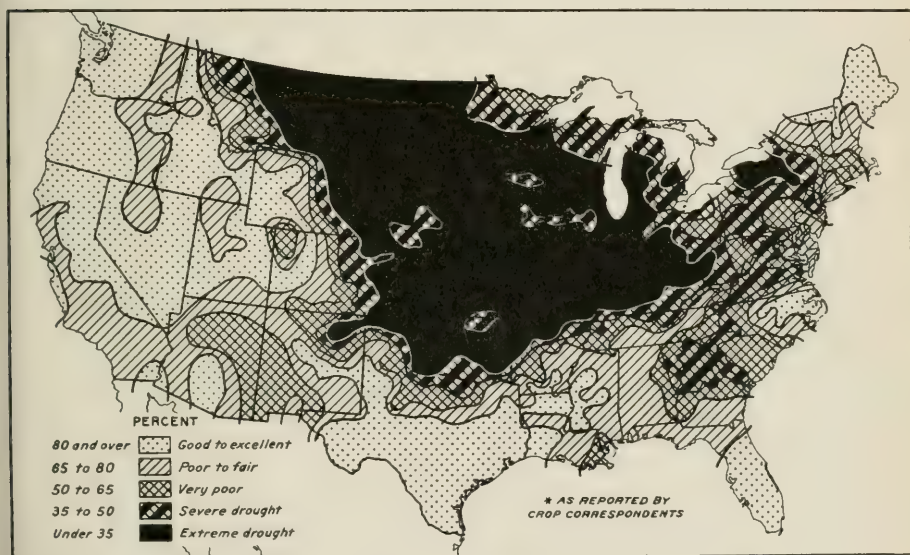
Department of Agricultural Economics, College of Agriculture and Agricultural Experiment Station, in cooperation with the Extension Service in Agriculture and Home Economics, University of Illinois

Urbana

August, 1936

Number 15

The Business Outlook. Business activity has increased steadily since February of 1936, and is now at the highest level for anytime during the past six years. There has been a gain of about 12 percent during the past year which means that city people are now in a position to pay more for the same quantity of agricultural products than they were a year ago. This fact has had a definite influence on the price of livestock and livestock products during the summer



U.S. DEPARTMENT OF AGRICULTURE

PASTURE CONDITIONS, AUGUST 1, 1936*

The drought has been most severe in the corn-belt states. Pasture conditions are good in several areas from which corn-belt feeders secure feeder cattle and lambs, which will be an important factor in determining prices this fall.

months. On the basis of present indications, it appears that industrial activity and payrolls during the remainder of 1936, and the first half of 1937, will continue considerably above the levels of last year.

Feed Supplies. A corn crop of 1,429 million bushels was predicted on August 1 by the United States Department of Agriculture. This is only about half of a normal crop and if this prediction proves to be true, it will be the smallest corn crop since 1881.

With the production of oats forecast at 772 million bushels, barley at 145 million, and grain sorghum at 81 million bushels, the total production of the four

feed grains is expected to amount to about 58 million tons. This would be 8 percent more than the final harvest of 1934, but 42 percent less than the 1923-32 average. In comparison with 1934, the available supply of feed grains (production adjusted for carry over and feed wheat) is expected to be 5 percent greater, whereas the grain consuming livestock will be 3 percent less than in 1934. Available hay supplies appear to be 20 percent greater and the number of hay-consuming animals, 9 percent less this year than in 1934. The livestock situation is expected to be more adversely affected by the feed grain shortage than by the reduced supply of hay and roughage. The trend of hog numbers will change more than those of any other species of livestock.

CROP PROSPECTS FOR 1936 COMPARED WITH PRODUCTION
Last Year and an Average Crop. United States Production

	5-Year Average 1928-1932	1935 Production	1936 Prospects Aug. 1 Condition
Corn (million bu.).....	2 553	2 292	1 439
Wheat (million bu.).....	864	623	633
Oats (million bu.).....	1 215	1 197	772
Tame hay (million tons).....	70	76	62

Beef Cattle Prospects. Cattle numbers in the United States, although considerably smaller than two years ago, are still relatively large. Cattle numbers at the end of 1936 probably will be smaller than at the end of 1935.

Slaughter of both cattle and calves under Federal inspection during the first 7 months of 1936 was the second largest on record for the period. Cattle slaughter during the remainder of 1936 is expected to be large as compared with 1935. Most of the increase will be in low grade cows and heifers. Prices of well finished cattle should show some improvement during the fall months.

The number of cattle on feed in the corn-belt states on August 1 was 3 percent larger than on August 1, 1935. The increase for 1936 over 1935 was estimated to be 28 percent on January 1, and 41 percent on April 1.

Supplies of feeder cattle will be large this year particularly from the drought areas. Rains during the latter half of August would decrease the number coming to market, while hot dry weather would increase it. If the drought is broken soon, we probably have seen the low spot in the feeder market, because there will be a brisk demand from the corn belt for cattle to use the low yielding corn which will be fed without husking, and because a considerable portion of the range country has good grass which will slow up feeder cattle shipments.

The calf crop of 1936 will be considerably larger than in 1935, in spite of the fact that we had a smaller number of cows of breeding age. A high percentage of the cows produced calves in 1936, while this percentage was low in 1935.

Cattle Importations. The increase in imports of cattle and beef in the first half of 1936 over those of a year earlier was equivalent to about 1 percent of the total slaughter of cattle and calves during the period. Furthermore, about 8 percent of the quota that can come in at the lower duty has already entered the country, so that only 31,000 heads will be permitted entry into the United States at the lower duty during the last half of the year.

Hog Outlook. The number of hogs for slaughter in the 1936-37 marketing year, beginning next October, probably will be from 10 to 20 percent larger than in the year just ending, when the supplies were very small. The prospects

for next year is that supplies will still be 20 to 25 percent smaller than the average of the 5-year period preceding 1934-35. The small corn crop of 1936 will cut the number of sows to farrow this fall below the June 1 estimates, and the sows to farrow in the spring of 1937 will be materially less than would have been the case had we produced a good corn crop this year. The slaughter of hogs for the first 7 months of 1936 was only 68 percent of the average slaughter for the same months in 1932 and 1933, but was 22 percent above the slaughter for the same period in 1935.

The heavier than normal liquidation of hogs now taking place will likely continue thru the remainder of the year but will result in lighter supplies for the first three months of 1937. There has been an abnormal seasonal distribution of hog marketings each year since the drought of 1934.

Sheep Outlook. The 1936 lamb crop totalled 31 million head, according to the estimate of the United States Department of Agriculture. This was about 9 percent larger than the 1935 crop and less than 1 percent smaller than the record crop of 1931. This increase was all in the western sheep states, since the native lamb crop was a little smaller this year than last. Most of the increase was due to a good lamb crop rather than to an increase in the number of ewes. The increase was particularly large in Texas which produced the largest lamb crop on record.

Although the lamb crop of 1936 was larger than that of 1935, the slaughter of new crop lambs up to August 1 was smaller this year than last. This indicates an abundant supply of feeder lambs yet to come to market. The fact that wool prices are relatively high and that range conditions are good in much of the western sheep area, may result in a holding back of a larger than normal number of lambs for feeding west of the Continental Divide and in Texas.

Dairy Outlook. The demand for dairy products has improved with the increase in employment and business, and further improvement is in prospect. Dairy production has been reduced by the drought and production during the coming winter probably will be somewhat less than a year earlier and may be about the same as in the winter of 1934-35. During the next 12 months, prices of dairy products probably will average higher than a year earlier and the highest in about six years. The marked rise in foreign butter prices in the last year will tend to curtail imports. Consumption of fluid milk and cream in cities and villages is increasing, and the outlook is for further increases.

The number of milk cows declined about 1 percent in the last year, and some further reduction is in prospect. Milk production per cow during the next twelve months will probably be relatively low because of poor pastures and sharply higher feed costs in drought areas.

Poultry and Egg Outlook. Poultry prices are likely to decline by more than the average seasonal amount from July to December, 1936. Due to the increased number of chicks hatched and to drought conditions more poultry will be available for market.

Egg prices probably will rise by more than the average seasonal amount between July and December, 1936. Though some increase in production may occur, the effect of this on prices quite likely will be more than offset by the effects of lower storage stocks and of a probable increase in consumer incomes.

Original data for Tables A and B were obtained from the following sources: (1) Bureau of Agricultural Economics, U.S.D.A. Beginning with January, 1936, cash income to Illinois farmers includes the revised estimates of the Bureau. (2) Illinois Crop Reporting Service, Illinois State Department of Agriculture, and U. S. Department of Agriculture, cooperating; (3) Monthly data include an average of current month with eleven preceding months; (4) Federal Reserve Board; (5) National Industrial Conference Board. For explanations of computations, see Number 2, July, 1935.

TABLE A.—INDEXES OF BUSINESS CONDITIONS, SAME MONTH, 1921-1929 = 100

	Whole-sale prices of all commodities (U. S.) ¹	Farm prices		Cash income to Illinois farmers		Prices paid by farmers for commodities bought (U. S.) ¹	Purchasing power of income to Illinois farmers	Factory payrolls in the United States ⁴	Cost of living in the United States ⁵	Purchasing power of factory payrolls
		Illinois ²	United States ³	Millions ¹	Indexes ³					
1929.....	97	109	103	\$548.6	108	100	108	112	99	113
1930.....	88	95	89	459.7	91	96	95	90	95	95
1931.....	74	65	61	309.5	61	82	74	68	86	79
1932.....	66	44	46	228.7	45	71	63	48	77	62
1933.....	67	47	49	276.7	55	70	79	49	74	66
1934.....	76	64	64	306.1	60	80	75	64	78	82
1935.....	82	88	76	362.1	72	82	88	72	82	88
June, 1935...	82	89	74	26.5	73	83	88	69	82	84
March, 1936..	80	82	74	31.1	73	79	92	77	83	93
April, 1936...	81	84	75	36.4	73	79	92	80	84	95
May, 1936...	80	80	74	39.7	75	79	95	81	84	96
June, 1936...	81	82	76	....	..	79	..	82	86	95

TABLE B.—PRICES AND PRICE INDEXES OF ILLINOIS FARM PRODUCTS

Product	Prices					Indexes: same month 1921-1929 = 100		
	July average		July 1935	June 1936	July 1936	July 1935	June 1936	July 1936
	1910-14	1921-29						
Corn, bu.....	\$.63	\$.81	\$.79	\$.58	\$.80	98	74	99
Oats, bu.....	.38	.39	.29	.22	.32	74	52	82
Wheat, bu.....	.86	1.17	.74	.82	.97	63	66	83
Barley, bu.....	.63	.65	.42	.49	.63	65	73	97
Hogs, cwt.....	7.54	9.64	9.10	9.40	9.80	94	104	102
Beef cattle, cwt..	6.04	7.99	7.90	7.20	7.20	99	90	90
Lambs, cwt.....	6.04	11.29	7.30	9.50	8.90	65	80	79
Milk cows, head	53.00	72.00	53.00	57.00	55.00	74	79	76
Veal calves, cwt..	7.00	10.02	7.10	8.20	7.70	71	83	77
Sheep, cwt.....	4.14	5.62	2.95	3.40	3.40	57	60	60
Horses, head....	153.00	88.00	107.00	117.00	114.00	122	133	130
Butterfat, lb.....	..	.36	.22	.26	.31	61	72	86
Butter, cwt.....	1.29	2.19	1.35	1.55	1.80	62	77	82
Eggs, doz.....	.15	.23	.20	.18	.18	87	81	78
Chickens, lb.....	.12	.22	.14	.17	.17	64	80	76
Wool, lb.....	.19	.33	.21	.30	.30	63	90	90
Apples, bu.....	.77	1.63	.60	1.15	1.20	37	50	74
Hay, ton.....	13.91	13.24	9.70	7.50	8.60	73	54	65
Potatoes, bu.....	1.03	1.62	.70	1.80	1.70	43	123	105
Illinois index of farm prices.....						84	82	90

¹⁻⁵For sources of data in tables see previous page.

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ILLINOIS FARM ECONOMICS

Department of Agricultural Economics, College of Agriculture and Agricultural Experiment Station, in cooperation with the Extension Service in Agriculture and Home Economics, University of Illinois

Urbana

September and October, 1936

Numbers 16 and 17

Business Conditions. The steady business improvement in 1936, which has been evidenced in construction, manufacturing, transportation, mining, and trade, has been influential in making possible a continued increase in agricultural income despite the severe drouth which has resulted in very low yields of some crops. In July, 1936, factory payrolls in the United States, when corrected for

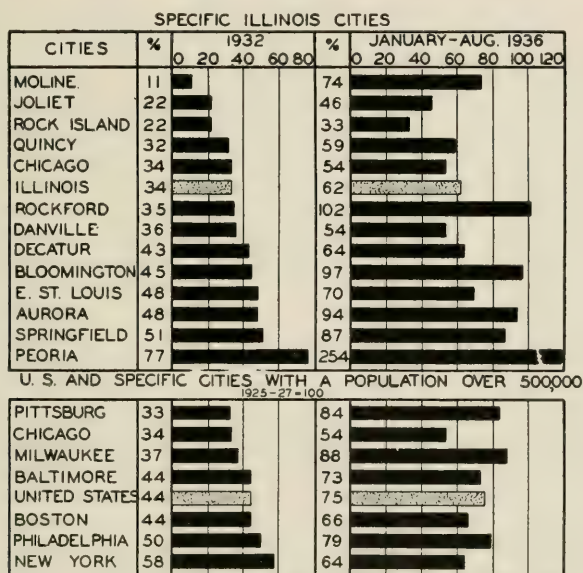


FIG. 1.—FACTORY PAYROLLS IN ILLINOIS, UNITED STATES, AND SPECIFIC CITIES, 1932, AND JANUARY-AUGUST, 1936

Payroll data for Illinois were obtained thru the courtesy of the Illinois Department of Labor, while those for other cities and for the United States were obtained from the Survey of Current Business. Since indexes of factory payrolls for Boston were not available, indexes of Massachusetts payrolls were used.

Changes in cost of living, averaged 99 percent of those for 1921-29 (Table A). In the same month, the purchasing power of the income of Illinois farmers was 91 percent of the 1921-29 average.

Construction activities in the United States have shown the greatest increases during the past year—contracts for August, 1936, being 71 percent higher than those a year ago. Manufacturing industries in August, 1936, produced 23 percent more goods than a year ago; transportation as measured by freight-car loadings, increased 17 percent; production of minerals was 21 percent higher; while trade, as measured by the value of department store sales, increased 12 percent.

A review of the course of business activity in the United States in recent years shows that since 1933 a definite upward trend has been taking place. Industrial production in the first eight months of 1936 was 58 percent higher than in the corresponding months of 1932 and 15 percent higher than in 1935. The purchasing power of United States factory workers from January to August, 1936, was 77 percent higher than for the corresponding months in 1933 and 11 percent higher than in 1935. While cost of living for factory workers has increased materially during the past three or four years, this increase has been far more than offset by increases in total incomes received by these workers.

Unemployment continues to be a major problem. While industrial production has been nearly as high as the 1921-29 average, construction contracts in August, 1936, were only about two-thirds as high. Continued increases in construction activities will help to reduce the number of unemployed. From a long-time point of view, it would seem that a production of goods materially above the 1921-29 level, combined with the introduction and use of new goods and services, will be necessary to employ profitably the total number of available workers.

Illinois Farm Prices. Short crops resulting from the drouth combined with an active demand have resulted in substantial increases in prices received for several Illinois farm products. In September, 1936, the combined index of Illinois farm prices was 5 percent higher than in August, and over 23 percent higher than in June (when corrected for changes in seasonal variation). Prices of barley, oats, corn, apples, hay, wheat, and butterfat have increased most from July to September while smaller price increases were shown for milk, beef cattle and hogs. Price declines since June have been registered for horses, veal calves, chickens, potatoes, lambs, eggs, and wool. Prices for sheep and milk cows have changed but little during this period.

Changes in Factory Payrolls. The major upward movement in factory payrolls in the United States from 1933 to 1936 has been evidenced also in Illinois and specific Illinois cities as well as in other larger cities in the United States (Fig 1). Payrolls in Illinois for the first eight months of 1936 were 18 percent higher than for the same period a year ago, and nearly twice the average for 1932. During the past year, Illinois payrolls have increased more rapidly than those for the country as a whole, although they are still considerably lower relative to the base period than those for the United States.

In eight cities, Peoria, Rockford, Bloomington, Aurora, Springfield, Moline, East St. Louis, and Decatur, factory payrolls have increased more rapidly than those for the state as a whole. The greatest increase during the past year took place in Peoria. For the first eight months of 1936 Peoria payrolls averaged 2.1 times those for 1925-27 and more than three times the average for 1932. Illinois Farm Economics reported in October, 1935, that factory payrolls in Peoria were the highest not only of any Illinois market, but of all other cities in the United States for which payroll data are available. Despite the high level reached last year, however, payrolls in this city during the first eight months of 1936 were nearly double those for the corresponding period in 1935. The improvement in business activity in Peoria in 1936 has been due principally to increased purchases of farm machinery and of tractors used on roads and for other uses and to the continued activity in the beverage industry.

Rockford payrolls in 1936 were 67 percent higher than a year ago and about three times those for 1932. The expansion of business in Rockford can be attributed principally to renewed activity of the metal industry, including the manufacture of business machines, and to increased furniture sales.

Payrolls in Rock Island, Chicago, Danville, Joliet, and Quincy were lower in 1936 than the state average.

Factory payrolls in Milwaukee, Pittsburgh, and Philadelphia from January to August, 1936, were higher than those for the United States, while for Chicago, New York, Boston, and Baltimore they were lower. In Chicago and New York, the two largest cities in the United States, 1936 factory payrolls were lowest when compared with the base period 1925-27. A movement toward decentralization in industry is one possible explanation why business activity in these cities during the past four years has increased at a slower rate than in other cities. Payrolls in Chicago have increased much more rapidly than those in New York, altho Chicago payrolls in 1932 had fallen to a much lower level. In 1936, they were 60 percent higher than in 1932, while those in New York had increased only 10 percent.

R. W. BARTLETT

Costs of Harvesting With Combines. The average costs per acre of harvesting wheat, oats and soybeans with combines of various sizes and types in central Illinois in 1935 ranged from \$1.04 to \$1.48 for wheat, \$1.09 to \$1.51 for oats, and \$.94 to \$1.51 for soybeans (Table 1). The study covered a total of 83

TABLE 1.—AVERAGE COST PER ACRE OF HARVESTING WHEAT, OATS, AND SOYBEANS WITH COMBINES, CENTRAL ILLINOIS, 1935

	Power-take-off			Motor-mounted			
	5 ft.	8 ft.	10 ft.	8 ft.	10 ft.	12 ft.	16 ft.
Wheat.....	\$1.32	\$1.29	\$1.39	\$1.42	\$1.37	\$1.48	\$1.04
Oats.....	1.30	1.45	1.06	1.30	1.51	1.41	1.09
Soybeans.....	1.37	1.25	1.49	1.42	1.51	1.40	.94
Number of combines.....	3	6	4	6	21	30	6

machines, including both the power-take-off and motor-mounted types. Thirteen of the machines were of the power-take-off type, with cutting widths of 5, 8, and 10 feet. Seventy machines were of the motor-mounted type with cutting widths of 8, 9, 10, 12, 16, and 20 feet. The nine- and twenty-foot sizes had only one machine each, but each of the other groups included from 3 to 31 machines.

A total of 35,731 acres were harvested by these machines. Of this acreage approximately 75 percent was soybeans; wheat, 17 percent; oats, 7 percent; and

TABLE 2.—AVERAGE ACREAGES OF VARIOUS CROPS HARVESTED WITH COMBINES, CENTRAL ILLINOIS, 1935

	Power-take-off			Motor-mounted			
	5 ft.	8 ft.	10 ft.	8 ft.	10 ft.	12 ft.	16 ft.
Wheat.....	50	54	51	77	65	78	115
Oats.....	5	15	19	35	36	35	53
Soybeans.....	111	203	319	300	266	338	709
Miscellaneous.....	..	..	..	2	2	4	7
Total acres.....	166	272	389	414	369	455	884
Average acres per foot of cutting width.....	33.3	34.0	38.9	51.8	36.9	37.9	55.2
Number of combines.....	3	6	4	7	24	31	6

other crops, 1 percent. The average acres harvested per foot of cutting width varied from 33 to 39 acres for five of the groups, and exceeded 50 acres for two of the groups, the 8-foot and 16-foot motor mounted groups (Table 2).

The average operating and overhead expenses for the season ranged from \$220.85 for the 5-foot size to \$839.84 for the 16-foot size (Table 3). The cost items were calculated as follows: labor operating and repairing combines, 40 cents an hour; tractor operators, 30 cents an hour; and other labor, 20 cents an hour.

Use of tractors (without fuel or oil) was charged at 30 cents an hour for three-plow tractors, and 23 cents for the two-plow size. Tractor and motor fuel, oil, and grease, and combine repairs were charged at cost. Depreciation was calculated

TABLE 3.—AVERAGE COSTS OF OPERATING COMBINES, CENTRAL ILLINOIS, 1935

	Power-take-off			Motor-mounted			
	5 ft.	8 ft.	10 ft.	8 ft.	10 ft.	12 ft.	16 ft.
Labor							
Operating combine.....	\$46.00	\$62.10	\$83.15	\$101.07	\$83.09	\$83.61	\$105.72
Operating tractor.....	1.70	7.08	56.74	72.25	62.18	60.84	81.38
Chores on combine.....	5.47	17.70	27.55	25.46	25.55	24.18	36.62
Other labor.....		1.33		.20	.51	5.22	17.05
Total labor.....	\$53.17	\$88.21	\$167.44	\$198.98	\$171.33	\$173.85	\$240.77
Other variable costs							
Tractor use (except fuel).....	32.12	42.02	62.36	61.10	56.33	59.52	80.80
Tractor fuel.....	40.00	51.99	90.62	54.00	51.01	57.08	78.76
Tractor motor-oil.....	1.78	3.01	8.10	9.04	6.87	6.56	8.28
Combine motor fuel.....				36.31	34.77	47.96	75.57
Combine motor oil.....				5.22	3.59	5.14	4.40
Grease.....	2.77	2.56	6.76	9.84	6.99	6.90	8.08
Lubricating oil.....		1.00		.95	.42	.64	14.58
Repairs.....	1.20	24.48	43.90	49.61	27.75	30.94	29.59
Total other variable costs....	\$77.87	\$125.06	\$211.74	\$226.07	\$187.73	\$214.74	\$300.06
Fixed costs							
Depreciation.....	63.77	84.26	116.74	121.88	139.38	158.40	234.13
Interest.....	21.04	28.50	37.11	40.13	45.51	50.60	59.88
Shelter.....	5.00	5.00	5.00	5.00	5.00	5.00	5.00
Total fixed costs.....	\$89.81	\$117.76	\$158.85	\$167.01	\$189.89	\$214.00	\$299.01
Total cost of operation....	\$220.85	\$331.03	\$538.03	\$592.06	\$548.95	\$602.59	\$839.84
Average acres cut.....	166	272	389	420	377	453	884
Number of combines.....	3	6	4	6	21	30	6

on an acre basis from previous and current records, and varied from 26 to 37 cents an acre. Interest was figured at 6 percent of the average valuation, and shelter at a flat rate of \$5.00 for each machine.

R. C. ROSS and B. R. HURT

Shifting Real Estate Values in Illinois. Illinois farm real estate, valued at two and a fifth billion dollars in 1935, represented 6.7 percent of the national total farm real estate value of slightly less than thirty-three billions. This proportion is the lowest of any census period as far back as 1870 at which time the area of farm land in Illinois had reached practically the present total. The high proportion, 10.6 percent, was in 1900.

The average valuation per farm in Illinois in 1870 was \$3,631 (30 percent above the national average); in 1920, \$25,289 (146 percent above the national average); and in 1935, \$9,536 (99 percent above the national average). The valuations per acre were \$28.45, \$187.59, and \$69.67 respectively.

Between 1920 and 1935, the average Illinois farm had suffered an average annual decrease of \$1,050, or based upon the 1920 figure, a decline of nearly 1 percent for each of the 15 years. The average size of farm was slightly larger in 1935 than in 1920. Inasmuch as some advance was recorded after 1933, the rate of decrease during the 13 years between 1920 and 1933 was at more than 1 percent.

The state average valuation per acre when expressed in terms of national averages for each census, 1850-1935, reveals some striking developments. Valuations per acre in Illinois were 75 percent of the national average in 1850, 12 percent in 1860, between 270 and 275 in 1900, 1910, and 1920, and between 22 and 225 percent in 1930 and 1935. In the east north central division of states Michigan and Wisconsin have shown relative increases in land values in terms of national averages since 1920, and Ohio and Indiana since 1930. Illinois, however, has reflected a relative loss of position, less marked than that of Iowa, but more than that of South Dakota, Minnesota, or Missouri.

The 85-year span of farm value history has witnessed a number of changes in the relative standing of districts within the state. Southern Illinois districts, Carbondale and Harrisburg, attained their highest relative valuations very early, in 1850 and 1860, and their lowest relative valuations in 1930 and 1935, thus showing persistent downward trends in ratios. Bloomington and Chicago districts attained their lowest valuations in 1850, and their highest in 1920 and 1925.

Twelve counties in the southern part of Illinois reached their lowest relative valuation in 1925 or 1930, while 17 counties, 8 along the Illinois River and 7 in southwest central Illinois reached their lowest relative valuations in 1935.

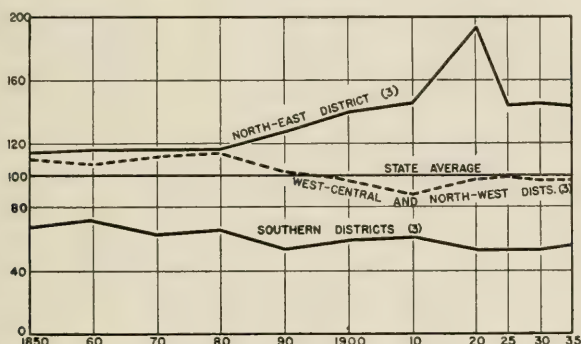


FIG. 2.—RELATIVE CHANGES BY DISTRICTS OF REAL ESTATE VALUES IN ILLINOIS

From 1925-1935 the northeast group was at about the same level as in 1910, the southern group was lower, and the west central and northwest groups higher. The notable shift culminating in 1920 was most marked in the northeast group.

Between 1925 and 1935 the valuation of land and buildings per acre in four district groups, southern, northeast, west central and northwest, were fairly stable in relation to the state average, (Fig. 2), but during the decade or more prior to 1925 land boom conditions had notable effects in the standing of the groups. The northeast group had marked vicissitudes.

While space limits do not favor an exhaustive analysis of factors influencing these changes, especially changes in the nation as a whole, it may be noted that in the period of most rapid upward movement of real estate values, prior to 1920, differences between areas widened markedly, and in periods of falling real estate prices differences were shrinking. Districts in which commercial farming has been most emphasized have tended to show greatest changes both upward and downward. Commercial opportunities have had fluctuating significance and have caused real estate values to react to their tendencies to ebb and flow.

C. L. STEWART and W. J. WILLS

Corn Prices in Years of Short Crops. As one of the shortest corn crops on record is being harvested this year, farmers who wish to appraise market prospects during the next few months should give special attention to the course of prices during previous years of short crops. In such years it has not been the rule for prices to have a typical seasonal movement. Instead of being lowest in the late fall or early winter and then raising gradually until May or June, prices following very short harvests have commonly been highest in December or January. In years of moderately short crops, on the other hand, the movement of prices through the season has been much more nearly normal, with the lowest prices being reached in the late fall or winter months.

Since 1900 there have been three corn crops of less than 2 billion bushels, those of 1901, 1934, and 1936. In addition to these years of extremely short crops, there have been four years, 1913, 1924, 1930, and 1935, when the crop was less than 2.3 billion bushels. Production data for each of these seven years is given in the following table:

Year	Total Corn production (1,000,000 bu.)	Corn Prod. per hog, January 1 (bushels)	
1901.....	1 716	32.3	} Crops of less than 2,000,000,000 bushels
1934.....	1 377	23.5	
1936.....	1.509	35.5	
1913.....	2.273	42.2	} Crops between 2,000,000 and 2,300,000,000 bushels
1924.....	2.298	34.5	
1930.....	2.065	37.1	
1935.....	2.291	58.7	

It is to be noted that 1924 falls in the class of the extremely short crops, when considered in relation to the number of hogs to be fed, there being only 34.5 bushels of corn produced per hog in that year.

From Figure 3 it may be seen that thus far during the current year corn prices have moved more as they did in 1924-25 than in either of the other years of extremely short crops. In both 1901 and 1934, the rise from May to August was much less than this year. There are also other important similarities between 1924-25 and the current season. Prices of hogs and cattle are at approximately the same levels as on the corresponding date of 1924, and much above the levels

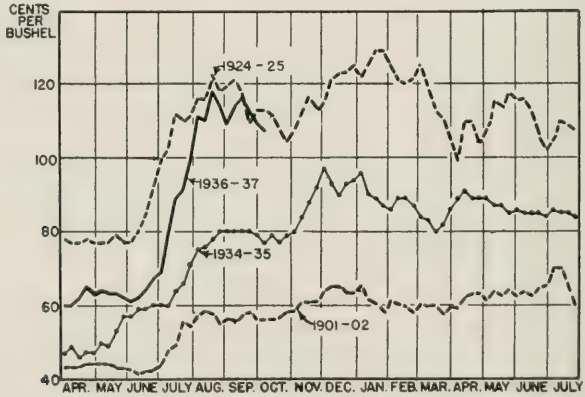


FIG. 3.—PRICES OF CORN IN YEARS OF EXTREMELY SHORT CROPS

of 1901 and 1934. Business activity has been increasing rapidly in recent month and is approaching “normal”, as was also the case during the latter half of 1924. In 1901 business activity was above normal and decreasing slowly, and in 1933 it was far below normal.

One of the most difficult questions concerning the probable movement of corn prices during the remainder of the current season is whether prices will again rise to as high levels as were reached last August. In Table No. 4 are shown monthly prices of corn for all the years since 1900 when the crop has been estimated at less than 2.3 billion bushels. The year 1924 has been classified along with 1901 and 1934 as a year of extremely short crop whereas 1913, 1930 and 1935 have been considered years of moderately short crops. From this table and from Figure 3 it will be seen that for each of the past years of extremely short crops prices reached higher levels in December or January than in the preceding summer. In the years of moderately short crops, on the other hand, prices were

lower during December and January than in the preceding summer and early fall. Both 1930-31 and 1935-36 may be treated as exceptions. The former because it was during the rapid down-swing of depression when virtually all prices were falling, the latter because it followed the extremely short crop of 1934 and corn prices during the midsummer of 1935 were more influenced by the previous crop than by that of 1935. The experience of 1913-14 though it provides only a single instance may be fairly typical of price movements in years of moderately short crops. It is also to be borne in mind that too great a rise from April to August

TABLE 4.—CORN: PRICES OF NO. 3 YELLOW AT CHICAGO IN SELECTED YEARS, CENTS PER BUSHEL

	Years of extremely short crops				Years of moderately short crops				This year
	1901-02	1924-25	1934-35	Average	1913-14	1930-31	1935-36	Average	
April.....	42	77	47	55.3	55	82	89	75.3	63
May.....	43	77	51	57.0	57	79	88	74.7	63
June.....	42	82	58	60.7	60	79	85	74.7	64
July.....	48	109	64	73.7	62	82	85	76.3	86
August.....	56	117	77	83.3	74	99	81	84.7	114
September.....	56	114	80	83.3	75	94	83	84.0	112
October.....	56	110	78	81.3	70	82	82	78.0	
November.....	60	111	83	84.7	72	71	62	68.3	
December.....	64	120	93	92.3	66	69	59	64.7	
January.....	62	124	91	92.3	62	65	61	62.7	
February.....	59	122	88	89.7	62	61	61	61.3	
March.....	59	117	83	86.3	64	60	61	61.7	
April.....	62	105	89	85.3	67	58	63	62.7	
May.....	62	115	88	88.3	70	56	63	63.0	
June.....	63	113	85	87.0	72	58	64	64.7	
July.....	65	108	85	86.0	71	57	86	71.3	

in a year of an extremely short crop might result in prices during August reaching levels higher than the following December or January even though the course of prices should otherwise correspond to the experience of other years of extremely short crops.

The tendency for corn prices to be higher in December than in August of years of extremely short crops appears to be due to the influence of very small receipts during November and December. Only a small part of the crop is marketed in the form of grain and the reduction in marketings is more than in proportion to the reduction in the crop unless prices are very attractive to corn growers.

The tendency for prices to recede somewhat from mid-winter to late spring is apparently due in part to the fact that the new Argentine crop becomes available during our spring months and in part to the reduction in hog numbers which results from every extremely short corn crop. Indeed, following every important reduction of hog numbers, regardless of its cause, corn prices usually either decline between December and May or fail to make their normal seasonal advance.

In appraising prospects for the current season it should be noted that while the number of bushels produced is very small, the number of bushels per hog is slightly larger than in 1924. While the spring pig crop showed an increase, still the corn supply is surely more nearly adequate for the hogs now on hand than was the case in 1901 or 1934. The reduction of hog numbers from January 1, 1936 to January 1, 1937, is likely to be much less than that which occurred during 1934. Corn loans or other governmental measures may also affect the course of prices.

E. J. WORKING.

Original data for Tables A and B were obtained from the following sources: (1) Bureau of Agricultural Economics, U.S.D.A. Beginning with January, 1936, cash income to Illinois farmers includes the revised estimates of the Bureau. (2) Illinois Crop Reporting Service, Illinois State Department of Agriculture, and U. S. Department of Agriculture, cooperating; (3) Monthly data include an average of current month with eleven preceding months; (4) Federal Reserve Board; (5) National Industrial Conference Board. For explanations of computations, see Number 2, July, 1935.

TABLE A.—INDEXES OF BUSINESS CONDITIONS, SAME MONTH, 1921-1929 = 100

	Whole-sale prices of all commodities (U. S.) ¹	Farm prices		Cash income to Illinois farmers		Prices paid by farmers for commodities bought (U. S.) ¹	Purchasing power of income to Illinois farmers	Factory payrolls in the United States ⁴	Cost of living in the United States ⁵	Purchasing power of factory payrolls
		Illinois ²	United States ³	Millions ¹	Indexes ³					
1929.....	97	109	103	\$548.6	108	100	108	112	99	113
1930.....	88	95	89	459.7	91	96	95	90	95	95
1931.....	74	65	61	309.5	61	82	74	68	86	79
1932.....	66	44	46	228.7	45	71	63	48	77	62
1933.....	67	47	49	276.7	55	70	79	49	74	66
1934.....	76	64	64	306.1	60	80	75	64	78	82
1935.....	82	88	76	362.1	72	82	88	72	82	88
Aug., 1935...	82	89	75	31.5	71	82	87	72	82	88
May, 1936...	81	80	74	39.7	75	79	95	81	84	96
June, 1936...	82	82	76	41.0	78	78	100	81	86	94
July, 1936...	83	90	82	50.4	82	81	101	84	85	99
Aug., 1936...	83	101	87	....	..	83	..	84	86	98

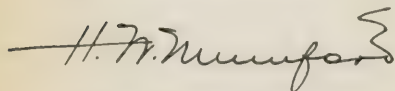
TABLE B.—PRICES AND PRICE INDEXES OF ILLINOIS FARM PRODUCTS

Product	Prices					Indexes: same month 1921-1929 = 100		
	Sept. average		Sept. 1935	Aug. 1936	Sept. 1936	Sept. 1935	Aug. 1936	Sept. 1936
	1910-14	1921-29						
Corn, bu.....	\$.66	\$.81	\$.75	\$ 1.04	\$ 1.07	93	125	132
Oats, bu.....	.36	.36	.24	.39	.40	67	108	111
Wheat, bu.....	.90	1.16	.88	1.06	1.06	76	91	91
Barley, bu.....	.61	.60	.42	.99	1.00	70	160	167
Hogs, cwt.....	7.98	10.02	11.00	10.60	10.30	110	106	103
Beef cattle, cwt..	6.18	8.22	8.30	7.20	7.50	101	89	91
Lambs, cwt.....	5.60	10.79	8.00	8.60	8.50	74	81	79
Milk cows, head	54.00	71.00	52.00	54.00	56.00	73	76	79
Veal calves, cwt..	7.54	10.99	8.60	7.50	8.30	78	72	76
Sheep, cwt.....	4.04	5.89	3.40	3.70	3.55	58	66	60
Horses, head....	150.00	85.00	102.00	106.00	106.00	120	122	125
Butterfat, lb....	...	.39	.24	.34	.34	61	92	87
Milk, cwt.....	1.49	2.26	1.45	1.95	2.00	64	86	88
Eggs, doz.....	.19	.30	.25	.20	.22	84	82	76
Chickens, lb....	.12	.21	.16	.16	.15	76	74	73
Wool, lb.....	.19	.33	.21	.30	.29	63	92	87
Apples, bu.....	.71	1.24	.60	1.20	1.20	48	94	97
Hay, ton.....	13.90	12.39	7.50	11.70	12.40	60	95	100
Potatoes, bu.....	.88	1.26	.65	1.60	1.50	52	118	119
Illinois index of farm prices.....						88	96	101

¹⁻⁵For sources of data in tables see previous page.

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ILLINOIS FARM ECONOMICS

Department of Agricultural Economics, College of Agriculture and Agricultural Experiment Station, in cooperation with the Extension Service in Agriculture and Home Economics, University of Illinois

Urbana

November, 1936

Number 18

General Business Conditions. The general business situation during October was one of continued activity with nearly all lines showing decided improvement. According to the United States News, the business situation was better than in September for 32 states including Illinois, receded slightly in 10, and re-

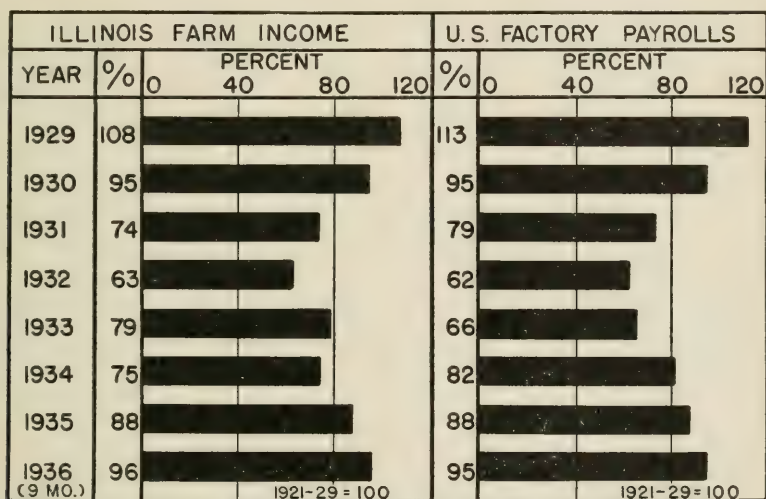


FIG. 1.—PURCHASING POWER OF ILLINOIS FARM INCOME, AND FACTORY PAYROLLS IN THE UNITED STATES, 1929-1936

mained unchanged in 6 states. Distribution as measured by freight car loadings reached a new peak during October. Record production was reported for numerous industries, including electric power, boots and shoes, and certain lines of textiles.

The two factors which are likely to be most influential in causing increased business activity during the rest of the year are:

1. The unprecedented wave of announcements by corporations of promises to release huge amounts of cash dividends to stockholders before Christmas.
2. The substantial wage increases or bonuses to workers offered by a large number of employing groups, particularly in the steel industries, sections of the automobile industry, and parts of the oil industry.

The principal reason for this sudden action of corporations in announcing extra dividends, increasing wages, or paying bonuses, is attributed to an effort to

avoid paying the new surtax on the undistributed corporate earnings which, according to law, becomes payable in March, 1937. By distributing net earnings to stockholders and wage earners, corporations can limit their tax payments to a levy ranging from 8 to 15 percent. If they retain those earnings, they would have to pay a surtax ranging from 7 to 27 percent in addition to the base corporation income tax. The net profits of 245 corporations whose third quarter reports were available, were 63.3 percent higher for the first nine months of 1936 than during the same period in 1935, according to the report of the National City Bank.

While direct returns will be materially reduced, it is expected that the yield to the government from both direct and indirect taxes on corporate earnings will be as large as would have been received had no extra dividends, wage increases, or bonus payments been made because of: (1) large returns expected from the base corporation income tax ranging from 8 to 15 percent, which will continue to be in force; (2) income from surtax of 7 to 27 percent on undistributed corporate earnings; (3) higher individual income taxes resulting from higher dividend payments to stockholders; and (4) higher individual income taxes by individuals benefiting from increased expenditures of wage-earners.

Material increases in trade between now and Christmas are expected as a result of increases in wages and bonus payments, together with the general increase in the purchasing power of consumers which has been taking place.

The index of the purchasing power of income to Illinois farmers in September, 1936, was 104, or 18 percent higher than in September a year ago. During the past four years incomes received by Illinois farmers have increased much more rapidly than prices paid by farmers for commodities bought. Factory payrolls in the United States also have increased much more rapidly since 1932 than the cost of living. The annual changes in the purchasing power of income to Illinois farmers and of factory payrolls in the United States from 1929 to 1936 are shown in Fig. 1.

Illinois Farm Prices. Price declines were registered in October for 13 of the 19 Illinois farm products shown in Table B, when corrected for changes in seasonal variation. The greatest price declines were shown for potatoes, apples, butterfat, oats, and eggs. Slighter declines in prices were shown for corn, sheep

TABLE 1.—COLD STORAGE HOLDINGS IN THE UNITED STATES IN THOUSANDS¹

	November 1				Nov. 1, 1936 Percent of 5-yr. average
	5-yr. average 1931-35	1934	1935	1936	
Total meats, pounds.....	533,092	722,880	361,592	540,253	101
Pork, pounds.....	410,631	504,737	240,663	352,260	86
Lard, pounds.....	70,818	105,519	40,702	94,495	133
Beef, pounds.....	60,708	108,399	65,464	104,680	172
All poultry, pounds.....	60,379	73,401	53,156	105,078	174
Broilers, pounds.....	13,121	18,515	9,223	25,691	196
Total eggs, case equivalent.....	7,131	7,168	7,159	6,133	84
Eggs, shell, cases.....	4,684	4,633	4,644	3,790	81
All cheese, pounds.....	101,011	118,008	111,731	118,918	118
Butter, creamery, pounds.....	102,961	111,073	120,210	105,319	102
Apples, bushels.....	28,637	31,224	30,827	25,132	88

¹Data from Bureau of Agricultural Economics, U. S. D. A.

chickens, lambs, hogs, wool, milk, and milk cows. Illinois farm prices of barley, hay, horses, wheat, beef cattle, and veal calves, increased from September to October. The combined index of Illinois farm prices declined from 101 in September to 98 in October.

Cold Storage Holdings and Movements. On November 1, 1936, the nation's ice box was more heavily stocked than average for the same month during the five-year period, 1931-35 (Table 1). While cold storage holdings of pork were 14 percent below average, stocks of beef and mutton were relatively high accounting for total stocks of meats slightly above average. Supplies of eggs and apples were also lighter than usual, but those of poultry, cheese, butter, and lard were above average. As compared with 1934, however, storage holdings of all these products except poultry were lighter.

Movements into and out of storage help to distribute the highly seasonal marketing of many perishable products over a longer consumption period, and thereby act as a price stabilizing influence. Were it not for storage supplies, the price of eggs would be much lower during March, April, and May when production is heavy, and much higher in October, November, and December when production is low.

A part of the meats in storage are those in curing processes. Storage holdings of pork usually are lowest about November 1, and increase with the seasonal marketing of spring pigs. The peak in storage stocks occurs in late spring or summer, varying somewhat with the kind of curing used. Stocks of lard are lowest about December and highest in August. Poultry is held largely in a frozen condition, with the lowest storage stocks about August, and the highest in January or February. Eggs, both fresh and frozen have lowest stocks in storage in March and the highest in August. Holdings of cheese are lowest in May and high in September and October; butter stocks are least in April and high in August and September. Apples are largely in storage by November 1, and have been largely moved out by June 1.

The amount of cold storage holdings is of interest to consumers, since it affects the supplies of foods available to them. When farm marketings of any of these products are unusually large, there is ordinarily a heavy into-storage movement which reduces the supply put on retail markets. On the other hand, when farm marketings are small, the out-of-storage movement supplements them. This situation regularly prevails from one season of the year to another because storage operators are able to anticipate the nature of seasonal changes in marketings of fresh foodstuffs. It is much more difficult to anticipate correctly unusual changes in marketings over longer periods; nevertheless there are times when stocks are built up to unusually high levels for the season of the year in anticipation of a favorable market at a later time when fresh supplies will be smaller than usual. The rather heavy current storage holdings reflect the belief of storage operators that decreased marketings are to be expected for some months, with seasonal price advances somewhat greater than usual.

Original data for Tables A and B were obtained from the following sources: (1) Bureau of Agricultural Economics, U.S.D.A. Beginning with January, 1936, cash income to Illinois farmers includes the revised estimates of the Bureau. (2) Illinois Crop Reporting Service, Illinois State Department of Agriculture, and U. S. Department of Agriculture, cooperating; (3) Monthly data include an average of current month with eleven preceding months; (4) Federal Reserve Board; (5) National Industrial Conference Board. For explanations of computations, see Number 2, July, 1935.

TABLE A.—INDEXES OF BUSINESS CONDITIONS, SAME MONTH, 1921-1929 = 100

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		Illinois ²	United States ³	Millions ¹	Indexes ³					
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1930.....	88	95	89	459.7	91	96	95	90	95	95
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1932.....	66	44	46	228.7	45	71	63	48	77	62
1933.....	67	47	49	276.7	55	70	79	49	74	66
1934.....	76	64	64	306.1	60	80	75	64	78	82
1935.....	82	88	76	362.1	72	82	88	72	82	88
Sept., 1935...	82	88	75	30.3	70	80	88	73	82	89
June, 1936...	82	82	76	41.0	78	78	100	81	86	94
July, 1936...	83	90	82	50.4	82	80	102	84	85	99
Aug., 1936...	83	101	87	44.3	85	82	104	84	86	98
Sept., 1936...	83	101	87	34.4	86	83	104	83	86	97

TABLE B.—PRICES AND PRICE INDEXES OF ILLINOIS FARM PRODUCTS

Product	Prices					Indexes: same month 1921-1929 = 100		
	Oct. average		Oct. 1935	Sept. 1936	Oct. 1936	Oct. 1935	Sept. 1936	Oct. 1936
	1910-14	1921-29						
Corn, bu.....	\$.61	\$.74	\$.74	\$ 1.07	\$.94	100	132	127
Oats, bu.....	.37	.38	.25	.40	.39	66	111	103
Wheat, bu.....	.91	1.18	1.01	1.06	1.10	86	91	93
Barley, bu.....	.63	.59	.44	1.00	1.04	75	167	176
Hogs, cwt.....	7.58	9.62	10.00	10.30	9.60	104	103	100
Beef cattle, cwt..	6.06	8.07	8.10	7.50	7.40	100	91	92
Lambs, cwt.....	5.64	10.61	8.20	8.50	8.00	77	79	75
Milk cows, head	55.00	72.00	52.00	56.00	56.00	72	79	78
Veal calves, cwt..	7.52	10.92	8.50	8.30	8.40	78	76	77
Sheep, cwt.....	3.98	5.69	3.55	3.55	3.15	62	60	55
Horses, head....	149.00	84.00	106.00	106.00	107.00	126	125	127
Butterfat, lb.....	.41	.25	.25	.34	.32	61	87	78
Milk, cwt.....	1.69	2.30	1.50	2.00	2.00	65	89	87
Eggs, doz.....	.22	.35	.26	.22	.25	74	76	70
Chickens, lb.....	.11	.20	.15	.15	.13	78	73	68
Wool, lb.....	.19	.33	.22	.29	.28	67	87	85
Apples, bu.....	.71	1.37	.65	1.20	1.20	47	97	88
Hay, ton.....	13.83	12.45	7.10	12.40	12.80	57	100	103
Potatoes, bu.....	.78	1.21	.65	1.50	1.30	54	119	107
Illinois index of farms prices.....						88	101	98

¹⁻⁵For sources of data in tables see previous page.

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ILLINOIS FARM ECONOMICS

Department of Agricultural Economics, College of Agriculture and Agricultural Experiment Station, in cooperation with the Extension Service in Agriculture and Home Economics, University of Illinois

Urbana

December, 1936

Number 19

The Agricultural Outlook for 1937

The following brief summary of the outlook for Illinois farm products is reprinted from the annual Agricultural Outlook for Illinois, published recently by the College of Agriculture and from which complete copies may be obtained.

Further improvement in the demand for farm products is expected in 1937. Business activity, particularly in the durable-goods industries, continues to increase. Unemployment, however, is still at a high level; and the volume of agricultural exports will remain at a low level. Grain prices will remain at a rather favorable level at least until the harvesting of new crops. Livestock prices, particularly of beef cattle and hogs, are expected to increase in 1937. Unfortunately farmers in the western and southern sections of Illinois will be short of feed, and consequently will be unable to realize the full advantage of the higher price-level.

Farm Family Living. Cash income available for farm family living in Illinois for 1937 will likely be larger than for any year since 1932. A slight upward trend may be experienced in prices of goods which farm families purchase.

Feeds. The supply of feed grains per grain-consuming animal unit for the current feeding season is about the same as in the drouth year of 1934, but is approximately 25 percent less than the 1928-1932 average. Hay supplies are relatively more plentiful than grains.

Corn. If corn prices in 1936-37 follow the same trend as in other years after very short corn crops, they will be highest in December or January instead of rising from December to May, as is typical in years following larger crops.

Insects. Unless late spring weather is wet and cool, grasshopper and chinch bug damage will be unusually serious, except in the extreme northern and southern sections of the state.

Wheat. With the present large acreage of winter wheat, production in 1937 will exceed average domestic consumption unless yields are 25 percent below average.

Soybeans. Demand for soybeans continues active. The 1936 crop, altho 28 percent below the 1935 crop, is the second largest ever produced in the United States.

Broomcorn. If the 1937 broomcorn acreage is as large as in 1936, and an average yield is secured, a surplus and an accompanying low price will result.

Forage Seeds. The 1936 production of the more important clover and grass seeds was much below normal. Heavy importations of forage seeds, some of which are poorly adapted, are expected before seeding time.

Beef Cattle. Total slaughter of both cattle and calves is expected to be smaller in 1937 than in 1935 or 1936 but larger than the 1929-1933 average. Further improvement in demand and somewhat higher prices are expected.

Hogs. The number of hogs for slaughter in the 1936-37 marketing year, which began October 1, is expected to be from 10 to 15 percent larger than in the two preceding years but about 20 percent less than the average of the five years prior to 1934.

Sheep and Wool. Because of the probable ample supply of fed lambs during the present winter, prices are not expected to average higher than those of a year earlier. The wool situation for 1937 is expected to be about the same as for 1936.

Horses and Mules. Demand for work stock is expected to continue strong for the next few years. The low point in the downward trend in horse and mule numbers on farms is expected to be reached in four or five years.

Dairy Products. The decline in consumption of fluid milk, cream, and ice cream, which occurred during the depression, has been halted, and consumption is now increasing. Increasing purchasing power of consumers is a particularly important factor in the improved dairy outlook.

Poultry and Eggs. Poultry producers are confronted with a decidedly unfavorable feed-egg ratio for the first half of 1937, but with normal crop conditions the ratio should become more favorable in the last half of the year.

Fruits. Present acreages of apple trees in Illinois should be maintained. Moderate increases in peach, pear, raspberry, and strawberry plantings are justified.

Vegetables. Vegetable prices are expected to be maintained at about the same level as in 1936, improvement in consumer buying power offsetting the expected increases in vegetable acreages.

Changes in Retail Distribution Methods. Within the past two decades there has been an almost revolutionary shift in the retail distribution of goods in the United States. According to the United States Census of Distribution, chain store sales, which in 1920 amounted to \$1,400,000,000 or 4 percent of the total retail sales, by 1929 had increased to \$9,800,000,000 or 20 percent of total sales. This large increase in chain store sales occurred during a period of city prosperity. By 1933, because of the depression, total value of retail sales had declined to about half that of 1929. During this period, chain store sales declined less than sales of independent stores, so that in 1933 sales of chains amounted to 25.2 percent of total retail sales. Next to variety, and shoe stores, grocery stores have had the most rapid growth in the chain store field. In 1933, chain store sales of groceries and meats were 44.1 percent of total sales of these products.

During this same period retail distribution has also been affected by the growth of consumer cooperatives. These are of two types: (1) those organized by groups of farmers to supply goods used largely in farm production, and (2) those organized by city groups to supply finished goods to city consumers. The latter group has not been a significant competitive influence in the United States, and in spite of the wide publicity given them in the past few months, their progress in this country during the next few years is likely to be slow both because of

their inability to compete with chain stores and because of the shifting and heterogeneous population found in most cities. In 1934-35 consumer cooperatives in urban areas did an estimated business of \$115,000,000.

The growth of cooperatives which supply goods used in agricultural production, however, has been rapid. From an estimated value of less than \$25,000,000 in 1915, the value of farm supplies purchased cooperatively increased to \$76,000,000 in 1924, and to \$125,000,000 in 1929, according to the United States Census. By 1934-35 cooperative associations purchasing farm supplies did an estimated business of more than \$250,000,000, and in 1935-36, of \$309,000,000, according to the Farm Credit Administration. (Cooperative activity in the marketing of farm products is not included). While data for the past two years cannot be compared directly with the earlier Census data, they indicate the upward trend in the growth of cooperative associations supplying goods to farmers.

Farmers are now purchasing farm supplies and general merchandise cooperatively in 45 states. About 45 percent of the 2,112 associations in the country handle oil and gasoline, 42 percent feed, 30 percent seed, 25 percent fertilizer, and 12 percent coal. A million farmers are now members of these associations. In Illinois the estimated value of farm supplies handled by buying cooperatives increased from \$11,100,000 in 1934-35 to \$15,220,000 in 1935-36, an increase of 37 percent. More than three fourths of such associations sell oil and gasoline.

What have been the underlying causes for the rapid growth in purchases thru chain stores and farmer cooperatives? The basic principles underlying the operation of both chain stores and farmer cooperatives have been rapid turnover, sales for cash, and giving to consumers the savings resulting from economies in handling a large volume of products.

Studies have shown that prices at chain stores have ranged from 7.3 to 14.3 percent below those of individual retailers in the same cities, the average being at least 10 percent lower (Table 1). Over a period of fifty years the patronage refund or savings of the English consumer cooperatives averaged 11 percent.

In promoting sales, farm supply associations in the United States have emphasized quality, service and economy. While each of these has contributed to increased sales, it is probable that the return to members of patronage refunds has been most influential in bringing about the rapid growth in the past 15 years.

TABLE 1.—SUMMARY OF STUDIES COMPARING CHAIN STORE PRICES WITH PRICES OF INDEPENDENT RETAILERS^a

City	Percent reduction in chain stores	City	Percent reduction in chain stores
Albuquerque ^b	10.0	Lexington ^b	14.3
Athens, Georgia ^c	10.0	London, Ontario ^d	13.6
Canastota, Cazenovia, Hamilton, Earlville, Sherburne ^d	10.0	Harvard Bureau of Business Research ^e	10.0
Champaign-Urbana ^f	8.4	The Nation ^g	
Chicago ^f	10.0	124 standard items.....	7.3
Durham ^g	13.8	400 brands, canned goods.....	11.0
		Staples, eggs, butter, sugar, etc. ^h	11.2

^aFrom Ill. Agr. Exp. Sta. Mimeo. Report, "Economic Problems in the Retail Distribution of Milk." October, 1932. ^bStudy of Myrtle Rush, University of New Mexico. ^cStudy of Maurice R. Brewster, Georgia School of Technology. ^dStudy of Charles F. Phillips, Colgate University. ^eStudy of P. D. Converse, University of Illinois. ^fStudy of James L. Palmer and Einer Bjorklund, University of Chicago. ^gStudy of Malcolm D. Taylor, University of North Carolina. ^hStudy of Edgar Z. Palmer, University of Kentucky. ⁱStudy by H. A. White, University of Western Ontario. ^jStudy made at Harvard University. ^kStudy by Edward G. Ernest and Emil M. Hartl. ^lStudy of Rebecca B. Hoffman.

Original data for Tables A and B were obtained from the following sources: (1) Bureau of Agricultural Economics, U.S.D.A. Beginning with January, 1936, cash income to Illinois farmers includes the revised estimates of the Bureau. (2) Illinois Crop Reporting Service, Illinois State Department of Agriculture, and U. S. Department of Agriculture, cooperating; (3) Monthly data include an average of current month with eleven preceding months; (4) Federal Reserve Board; (5) National Industrial Conference Board. For explanations of computations, see Number 2, July, 1935.

TABLE A.--INDEXES OF BUSINESS CONDITIONS, SAME MONTH 1921-1929 = 100

	Whole-sale prices of all commodities (U. S.) ¹	Farm prices		Cash income to Illinois farmers		Prices paid by farmers for commodities bought (U. S.) ¹	Purchasing power of income to Illinois farmers	Factory payrolls in the United States ⁴	Cost of living in the United States ⁵	Purchasing power of factory payrolls
		Illinois ²	United States ¹	Millions ¹	Indexes ³					
1929.....	97	109	103	\$548.6	108	100	108	112	99	113
1930.....	88	95	89	459.7	91	96	95	90	96	94
1931.....	74	65	61	309.5	61	82	74	68	86	79
1932.....	66	44	46	228.7	45	71	63	48	77	62
1933.....	67	47	49	276.7	55	70	79	49	74	66
1934.....	76	64	64	306.1	60	80	75	64	78	82
1935.....	82	88	76	362.1	72	82	88	72	82	88
Oct., 1935....	82	88	76	33.5	70	80	88	76	82	93
July., 1936...	83	90	82	50.4	82	80	102	84	84	100
Aug., 1936...	83	101	87	44.3	85	82	104	84	85	99
Sept., 1936...	83	101	87	34.4	86	83	104	85	85	100
Oct., 1936....	83	98	84	35.1	86	83	104	89	84	106

TABLE B.—PRICES AND PRICE INDEXES OF ILLINOIS FARM PRODUCTS

Product	Prices					Indexes: same month 1921-1929 = 100		
	Nov. average		Nov. 1935	Oct. 1936	Nov. 1936	Nov. 1935	Oct. 1936	Nov. 1936
	1910-14	1921-29						
Corn, bu.....	\$.54	\$.67	\$.53	\$.94	\$.95	79	127	142
Oats, bu.....	.37	.38	.24	.39	.40	63	103	105
Wheat, bu.....	.91	1.18	.92	1.10	1.09	78	93	92
Barley, bu.....	.63	.59	.44	1.04	1.02	75	176	173
Hogs, cwt.....	6.94	8.69	8.80	9.60	9.00	101	100	104
Beef cattle, cwt..	5.96	7.90	7.70	7.40	7.80	98	92	99
Lambs, cwt.....	5.58	10.62	8.70	8.00	7.90	82	75	74
Milk cows, head	54.00	72.00	53.00	56.00	57.00	74	78	79
Veal calves, cwt..	7.30	10.21	8.90	8.40	8.30	87	77	81
Sheep, cwt.....	3.94	5.60	3.70	3.15	3.15	66	55	56
Horses, head....	148.00	83.00	108.00	107.00	109.00	130	127	131
Butterfat, lb.....		.43	.29	.32	.32	68	78	75
Milk, cwt.....	1.81	2.34	1.60	2.00	2.00	68	87	86
Eggs, doz.....	.27	.44	.29	.25	.32	66	70	73
Chickens, lb.....	.10	.19	.16	.13	.12	83	68	65
Wool, lb.....	.18	.34	.24	.28	.30	70	85	88
Apples, bu.....	.79	1.50	.65	1.20	1.30	43	88	87
Hay, ton.....	13.92	12.91	7.40	12.80	12.70	57	103	98
Potatoes, bu.....	.71	1.26	.70	1.30	1.20	56	107	95
Illinois index of farm prices.....						82	98	101

¹⁻⁵For sources of data in tables see previous page.

UNIVERSITY OF ILLINOIS
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PENALTY FOR PRIVATE USE TO
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Director Agricultural Extension

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Acts of May 8, and June 30, 1914.

ILLINOIS FARM ECONOMICS

Department of Agricultural Economics, College of Agriculture and Agricultural Experiment Station, in cooperation with the Extension Service in Agriculture and Home Economics, University of Illinois

Urbana

January and February, 1937

Numbers 20 and 21

Domestic Business Conditions. The upward trend of industrial activity, temporarily interrupted in January as a result of floods and strikes, is expected to be resumed during the next few months. The evidence pointing to continued improvement in the purchasing power of consumers indicates a generally favorable domestic demand situation for farm products. It appears unlikely that in the near future there will be any material changes in the foreign demand situation, and no marked changes in the all-commodity price level are anticipated.

—*The Demand and Price Situation, Feb., 1937. U.S.D.A.*

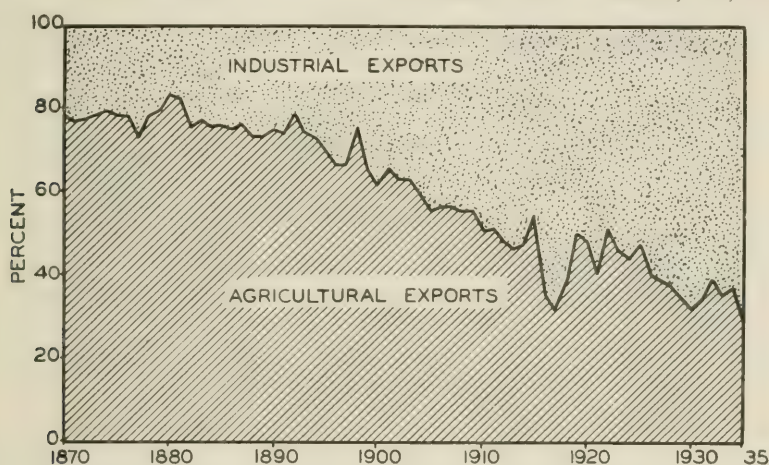


FIG. 1.—CHANGES IN THE RELATIVE IMPORTANCE OF INDUSTRIAL AND AGRICULTURAL EXPORTS FROM THE UNITED STATES, 1870-1935

The Relation of International Trade Agreements to Incomes of Dairy Producers. Changes in the purchasing power of consumers in this country depend primarily upon changes in the volume of industrial production. The latter, in turn, depends upon effective demand for goods both for domestic purposes, and for export. During the period 1925-1929, approximately 95 percent of the industrial production in the United States was utilized at home and the remaining 5 percent was exported. While industrial exports make up only a small proportion of total production, since 1880 they have made up an increasingly large part of our total exports (Fig. 1). From 1870 to 1880 about four-fifths of our total exports were agricultural products; in contrast, from 1926 to 1935 less than two-fifths were agricultural products.

During the past two years a number of international trade agreements have been established in an effort to increase the volume of foreign trade. Such an increase must involve an increase in both exports and imports, since in the long run exports can be increased only by an increase in imports. This policy of in-

creasing foreign trade has been questioned by some groups, particularly those whose products are marketed in competition with the import trade thus stimulated. Inasmuch as some farm products are among the favored imports, domestic producers of such products frequently raise the question of what effect this policy of increasing foreign trade has upon their incomes.

The following analysis is an attempt to measure the effects of trade agreements upon the incomes of dairymen—one group directly involved,—including not only the direct effects of increased importation of dairy products, but also any indirect effects which result from an increase in foreign trade.

Changes in factory payrolls in the United States since 1923 have been accompanied by corresponding changes in butter prices¹ (Fig. 2). From 1930 to 1935

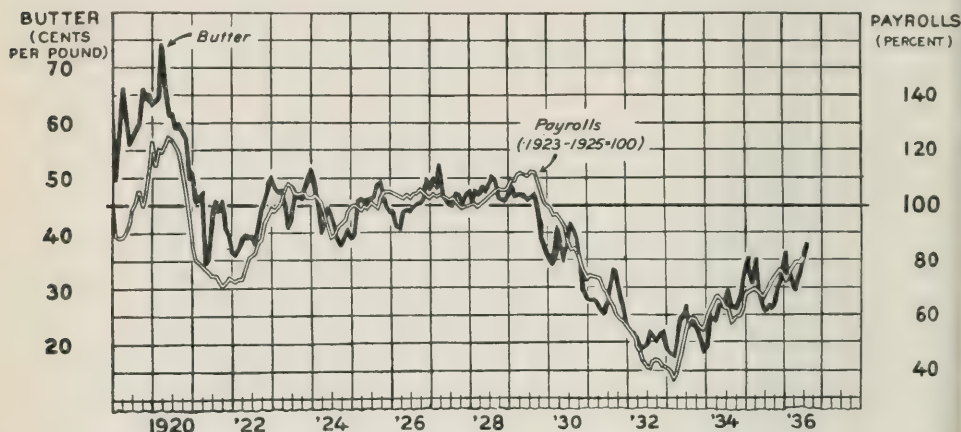


FIG. 2.—CHANGES IN PRICES OF 92-SCORE BUTTER AT NEW YORK AND FACTORY PAYROLLS IN THE UNITED STATES, 1919-1936
(From U. S. Department of Agriculture)

a change in factory payrolls of 225 million dollars was associated with a change of one cent a pound in the price of butter (Table 1). Payrolls in factories producing for export, declined from 513 million dollars in 1925-1929, to 254 million dollars in 1930-1935, or a decline of 259 million dollars (Table 2). In computing these figures it was assumed that factory workers producing goods exported received the same proportion of the value of these goods as did those producing goods used for domestic consumption.

There is, of course, uncertainty concerning the extent to which changes in butter prices were actually caused by changes in factory payrolls and to what extent they were the result of other factors which moved in unison with payrolls. From the viewpoint of this discussion, however, the important fact is that changes in payrolls have constituted a rather accurate measure of changes in butter prices, and that from 1930-1935, a change of 225 million dollars in payrolls was associated with a change of one cent a pound in butter prices. Hence, it seems reasonable to assume that the decline of 259 million dollars in payrolls for production of industrial exports was accompanied by a decline of over one cent a pound

¹If these factors changed exactly together, the coefficient of correlation would be 1.00. The actual coefficient from 1923 to 1935 was .986 percent, indicating the close relationship which has existed between changes in factory payrolls and butter prices.

TABLE 1.—A COMPARISON OF THE AMOUNTS OF CHANGES IN FACTORY PAYROLLS WITH CHANGES IN BUTTER PRICES

Year	Factory payrolls in U. S. ¹	Amount payrolls were lower than in 1925-1929	Price of 92-score butter at New York ²	Amount New York butter prices were lower than for 1925-1929	Amount of change in factory payrolls which was accompanied by each cent of change in butter prices ³
	(millions)	(millions)	(cents per pound)		(millions)
Average, 1925-29 . . .	\$10 999		45.87		
1930	9 518	\$1 481	36.51	9.36	\$158
1931	7 256	3 743	28.31	17.56	213
1932	5 022	5 977	21.00	24.87	240
1933	5 106	5 893	21.66	24.21	243
1934	6 584	4 415	25.70	20.17	219
1935	7 467	3 532	29.79	16.08	220
Weighted average, 1930-35 . . . . .	.....	.....	.....	.....	225

¹Data for 1929-1932 from Economic Trends Affecting Agriculture, 1933, p. 33, U. S. Department of Agriculture; data for 1933-1935 based upon indexes of the Federal Reserve Board.

²From U. S. Department of Agriculture.

³Factory payrolls in 1930 were \$1,481,000,000 lower than those for 1925-1929, while the 1930 price of butter in New York was 9.36 cents per pound lower than the average for 1925-1929. \$1,481,000,000 divided by 9.36 = \$158,000,000, or amount which factory payrolls declined for each cent decline in butter prices. Data for 1931-1935 were computed in the same way as those for 1930.

TABLE 2.—ESTIMATED AMOUNTS WHICH FACTORY WORKERS IN THE UNITED STATES RECEIVED FOR THE PRODUCTION OF INDUSTRIAL EXPORTS, 1925-1929, EXCEEDED AMOUNTS RECEIVED, 1930-1935

Year	Value of industrial exports ¹	Estimated payrolls to factory workers producing indus- trial exports ²	Amounts payrolls for pro- duction of industrial exports in 1925-1929 exceeded those for specified year
	(millions)	(millions)	(millions)
1925-29	\$3 017	\$513	\$. . .
1930	2 580	443	70
1931	1 557	267	246
1932	914	157	356
1933	952	164	349
1934	1 367	235	278
1935	1 494	257	256
Average, 1930-35 . . . . .	.....	.....	259

¹Data for 1925-1933 from Foreign Trade in the United States, U. S. Department of Commerce, Trade Promotion Series No. 156; data for 1934 from Statistical Abstract, 1935, U. S. Department of Commerce, pp. 420 and 569; data for 1935 from Monthly Summary of Foreign Commerce, U. S. Department of Commerce, December, 1935.

²The total amount of wages paid factory workers in the United States for 1925, 1927, and 1929, according to the U. S. Census of Manufacturers, averaged \$11,058,000,000, or 17.0 percent of \$64,984,000,000, the annual average value of all products manufactured. In this study it was assumed that, on the average, factory workers producing goods exported received the same proportion of the value of these goods as those producing goods used for domestic consumption.

in butter prices (Table 3). For the 10,832 million pounds of butter sold in the United States from 1930 to 1935, this is equivalent to a total reduction in income to producers of 126 million dollars, or an average of about 21 million dollars a year.

Prices for milk, cream, and other dairy products are to a large extent dependent upon butter prices. Since milk used in butter constitutes less than half the total volume of milk sold, it is reasonable to believe that the total reduction in incomes of dairymen in the United States which accompanied losses in industrial exports from 1930 to 1935 amounted to over 250 million dollars.

In connection with the reciprocal trade agreement between the United States

TABLE 3.—ESTIMATED DECLINE IN INCOME TO DAIRYMEN FROM LOWER BUTTER PRICES WHICH ACCOMPANIED LOSSES IN INDUSTRIAL EXPORTS, 1930-1935

Estimated losses in factory payrolls (corrected) which accompanied losses in industrial exports ¹		Amount of decline in factory payrolls which was accompanied by a decline of one cent per pound in butter prices ²	Decline in butter prices which accompanied losses in industrial exports ³	Sales of factory and farm butter in U. S. ⁴	Decline in income to butter producers from lower butter prices which accompanied losses in industrial exports
(Year)	(millions)	(millions)	(cents per lb.)	(mill. lbs.)	(millions)
1930	\$ 70	\$158	.443	1 720	\$ 7.6
1931	246	213	1.155	1 795	20.7
1932	356	240	1.483	1 835	27.2
1933	349	243	1.436	1 903	27.3
1934	278	219	1.269	1 829	23.2
1935	256	220	1.164	1 750	20.4
Average, 1930-1935	...	...	1.167	.....	.....
Total, 1930-1935	...	...	.....	10 832	126.4

¹See Table 1. ²See Table 2.

³In 1930 losses in factory payrolls resulting from losses in industrial exports amounted to \$70,000,000; butter prices declined one cent a pound for each decline of \$158,000,000 in factory payrolls. 70 divided by 158 equals .445, cents per pound, the decline in butter prices which in 1930 accompanied the decline in factory payrolls resulting from losses in industrial exports. Computations for 1931-1935 were computed in the same way.

⁴Sales of factory butter from U. S. Yearbook of Agriculture, 1936; sales of farm butter from 1930-1932 from Utilization of Milk and Cream in the United States, November, 1933, (mimeo.) U. S. Department of Agriculture; from 1930-1932 sales of farm butter averaged 7.94 percent of factory production of butter; the same proportion was assumed for 1933-1935.

and Canada which became effective January 1, 1936, both gains and losses can be observed. Results from this agreement which have been favorable to an increase in dairymen's income are:

1. *Higher butter prices have accompanied increased industrial production.* Substantial increases in industrial payrolls in 1936 have been accompanied by substantial increases in butter prices. The price of 92-score butter in New York averaged 31¼ cents per pound higher in 1936 than in 1935. Increased industrial exports to Canada have been a factor altho a minor one in increasing industrial payrolls. For the first eleven months of 1936, total exports to Canada were 50 million dollars higher than for the corresponding months in 1935; the major part of this increase consisted of industrial products. While a part of this increase would have occurred without a trade agreement, the sharp increases in exports have occurred on products which received a lower tariff rate in this agreement.

2. *Higher prices for dairy products other than butter.* Prices for dairy products other than butter have been higher in 1936 than in 1935, in part because of higher butter prices.

Results from this agreement which have tended to lower dairymen's income are:

1. *Increase in imports of cream.* The reduction in the tariff rate on cream from 56.6 cents to 35.0 cents a gallon up to 1.5 million gallons annually made possible an increase of cream imports. While in a limited area in the northeastern states increased imports of cream to this extent might result in somewhat lower cream prices, the influence of such imports on prices for dairy products as a whole has been relatively small since such imports constitute only one-eighth of one percent of the average annual production of cream in the United States.

2. *Increase in imports of cheese.* The reduction in the tariff rate on cheddar cheese from 7 to 5 cents per pound undoubtedly encouraged an increase in imports of cheese. The increase in imports for the first 11 months of 1936 was

about 9 million pounds which represents an increase of 18 percent over the corresponding period in 1935. Most of this increase came from Canada. Cheese imports in 1936 were 5 percent over the average from 1930-1935. The 1936 total was less than four-fifths of the average for 1925-1929.

Balancing gains against losses resulting from the Canadian trade agreement, it appears likely that during the past year increased incomes to dairymen from higher prices for butter and other dairy products have at least offset the losses resulting from increased cream and cheese imports.

Total exports to Canada in 1936 were about 400 million dollars less than the average for 1925-1929. With lower tariff rates on many industrial exports and a world-wide expansion in business activity, exports may be expected to increase to more nearly the 1925-1929 level during the next few years. If this occurs, dairymen are likely to realize increased incomes from higher prices for butter and other dairy products proportionate to increases which have accompanied similar increases in exports in the past. Since losses in income resulting from imports of the specific quota of cream are not likely to increase, and since large increases in cheese imports are unlikely, it seems probable that dairymen in the United States will be rewarded with substantial net gains from the operation of the Canadian trade agreement during the next few years.

R. W. BARTLETT

Yield Dependability in Rating Illinois Farm Land. As a basis for crop insurance plans, crop yields need to be measured by the degree and frequency of variation as well as by long-time averages.

Two areas may have the same long-time average of acre yields of a crop and yet differ in year-to-year dependability in yield. Where the yield of corn, for example, has run within 10 percent of the long-time average of the area in two-thirds of the years and has dropped to less than 50 percent of average in only one year in ten, the dependability in growing corn is high for that land. In this connection two factors are of interest: first, the variation in bushels and in percent by which the yield of the various years differs from the long-time average; and second, the frequency of occurrence of extremely low yields. From the standpoint of farmers considerable variation, even where fairly wide and frequent, can be prepared for. Extremely low yields, however, are by no means sure to follow bumper yields, and when a large proportion of producers suffer very low yields in one or more major crops, they are likely to need direct relief or at least loans and other provisions to tide them over.

The average corn yield in Illinois over the 16-year period, 1919-1934, was 34 bushels, the highest 43 bushels (1932), the lowest 20.5 bushels (1934) (Table 4).

Variation from year to year in yearly average corn yield averaged between 5 and 6 bushels per acre in four districts, between 4 and 5 bushels per acre in four districts, and 3.5 bushels in the Harrisburg area. The percentage which the yearly average variation was of the 16 year average was greater for 7 of the 9 districts than a similarly computed percentage variation for the state as a whole; in the Carbondale district, where the average annual variation was greatest, it exceeded that for the state by 58 percent, while in the Dixon district where the variation was least, it fell 10 percent below that for the state. Of the 102 counties the variation in 80 was more than in the respective district averages, and in 88 was more than in the state average. The average variations in counties ranged from 79 percent of the state average (Stephenson County) to 316 per-

TABLE 4.—CORN YIELDS AND THEIR VARIATION, ILLINOIS, 1919-1934

Crop reporting districts	16-year average		Highest yield		Lowest yield		Range ²	
	Yield in bu.	Average variation ¹	Year	Yield	Year	Yield	Amount	Percent
		Bushels Percent						
State.....	34.0	4.2 12.4	1932	43.0	1934	20.5	22.5	66.2
Dixon.....	39.5	4.4 11.1	1925	51.0	1934	29.5	21.5	54.4
Chicago.....	35.3	4.9 14.0	1925	43.0	1934	15.7	27.3	77.3
Galesburg.....	37.1	5.8 15.6	1932	48.1	1934	16.6	31.5	84.9
Springfield.....	32.2	5.6 17.3	1932	44.3	1934	12.7	31.6	98.1
Bloomington.....	36.3	4.5 12.4	1925	44.0	1933	23.3	20.7	57.0
Champaign.....	34.1	5.2 15.3	1932	43.0	1934	16.8	26.2	76.8
Mattoon.....	29.4	4.0 13.5	1932	38.6	1933	19.2	19.4	76.0
Carbondale.....	26.5	5.2 19.6	1925	34.0	1934	13.7	20.3	76.6
Harrisburg.....	25.9	3.5 13.4	1932	23.2	1930	12.4	10.8	41.7

¹Average difference between annual yields and the average for the period expressed in bushels and in percentage of average yield for the period.

²Difference between highest and lowest annual yields expressed in bushels and in percent of average yields for the period.

cent (Clinton County). The variation in 13 other counties was less than 100 percent of the state variation, in 52 counties between 100 and 150 percent, and in 35 counties between 150 and 250 percent.

The average oat yield in Illinois over the 16-year period, 1919-1934, was 30 bushels, the lowest 11.0 (1934) and the highest 39.5 bushels (1920). The average yearly departure from the 16-year average was 19.3 percent (Table 5).

The variation in oat yields averaged between 4 and 5 bushels in the Carbondale and Harrisburg districts and in the state as a whole, and more than 7 bushels in the Bloomington, Dixon, and Chicago districts. The percentage variation in all the crop reporting districts was greater than in the state as a whole. Ninety counties had more variation than the state as a whole, and 78 had more variation than their respective districts.

The average winter wheat yield in Illinois over the 17-year period, 1919-1935, was 16.4 bushels, the highest was 23.5 bushels (1931), the lowest 14 bushels (1928). The average yearly departure from the 17-year average was 9.8 percent (Table 6).

TABLE 5.—OAT YIELDS AND THEIR VARIATION, ILLINOIS, 1919-1934

Crop reporting districts	16-year average		Highest yield		Lowest yield		Range ²	
	Yield in bu.	Average variation ¹	Year	Yield	Year	Yield	Amount	Percent
		Bushels Percent						
State.....	30.4	5.9 19.3	1920	39.5	1934	11.0	28.5	93.8
Dixon.....	34.8	7.6 21.8	1925	47.0	1934	10.1	36.9	106.0
Chicago.....	35.5	8.3 23.4	1920	48.0	1934	10.1	37.9	106.8
Galesburg.....	32.0	6.5 20.3	1928	40.9	1934	7.7	33.2	103.8
Springfield.....	27.6	6.2 22.5	1931	37.4	1934	11.6	25.8	93.5
Bloomington.....	30.7	7.1 23.0	1924	43.8	1934	10.8	33.0	107.5
Champaign.....	29.5	6.2 20.9	1924	39.2	1934	9.8	29.4	99.7
Mattoon.....	23.8	5.9 24.8	1931	35.3	1933	11.8	23.5	98.7
Carbondale.....	24.9	4.8 19.4	1931	38.5	1922	16.7	21.8	87.6
Harrisburg.....	21.4	4.7 22.1	1931	35.9	1933	11.5	24.4	114.0

¹ and ²See corresponding footnotes, Table 4.

TABLE 6.—WINTER WHEAT YIELDS AND THEIR VARIATION, ILLINOIS, 1919-1935

Crop reporting districts	17-year average			Highest yield		Lowest yield		Range ²	
	Yield in bu.	Average variation ¹		Year	Yield	Year	Yield	Amount	Percent
		Bushels	Percent						
State.....	16.4	1.6	9.8	1931	23.5	1928	14.0	9.5	56.7
Dixon.....	21.2	2.4	11.5	1930	25.8	1934	8.2	17.6	35.9
Chicago.....	20.5	2.6	12.3	1919	27.0	1934	6.4	20.6	100.5
Galesburg.....	17.6	2.7	15.2	1922	23.1	1934	12.0	11.1	63.0
Springfield.....	16.9	2.1	12.2	1923	20.0	1927	13.0	7.0	31.4
Bloomington.....	18.5	2.5	13.3	1931	24.3	1934	13.0	11.3	61.0
Champaign.....	18.6	2.2	11.9	1922	21.9	1934	11.0	10.9	58.6
Mattoon.....	15.1	1.7	11.4	1931	24.0	1928	10.6	13.4	88.7
Carbondale.....	13.4	2.9	21.8	1931	23.9	1928	6.9	17.0	126.8
Harrisburg.....	12.9	2.8	21.8	1931	23.6	1928	7.1	16.5	137.9

¹ and ²See footnotes to Table 4.

Variations in wheat yields were between 2 and 3 bushels in all except the Mattoon district, and the state as a whole. Of the 102 counties the variation in 91 was more than in the respective crop reporting districts and the variation in all counties was greater than in the state as a whole.

Compared with the average annual bushel variation of wheat from its long-time average yield in the state as a whole, that of corn was between two and three times as large and that of oats nearly four times as large. The average annual deviation for wheat was less for the state as a whole than for any of the nine districts both in bushels and percentages. For corn the average annual deviation was less than that of the state as a whole in two districts, when considered on a bushel basis, but in terms of percentage, the average annual deviation in two districts was no greater than in the state as a whole. For oats the average annual deviation on the bushel basis in three areas was no greater than in the state as a whole, but on a percentage basis the deviation was larger in every district.

Considering the state as a whole during this period the yield of oats (19.3 percent average deviation) was nearly twice as variable as that of wheat (9.8 percent). In the greater part of the state wheat was less variable than either oats or corn.

Stability of yields is normally greater for large areas than for small, and instability appears more and more marked as smaller and smaller fractions of areas are considered. It is possible that almost any acre would show more variation than the field of which it is a part, the field more variation than the section as a whole, the section more variation than the township, and the township more variation than the county. That the same tendency continues into groups of counties, the state and even groups of states, seems to be indicated.

Inasmuch as producers under a crop yield insurance system would want indemnification for shortage in yield on individual tracts, it would be necessary for the insuring agency to consider the variations of individual farms rather than to compute the risk directly from variations in county, district or state average yields.

C. L. STEWART and W. J. WILLS

Original data for Tables A and B were obtained from the following sources: (1) Bureau of Agricultural Economics, U.S.D.A. Beginning with January, 1936, cash income to Illinois farmers includes the revised estimates of the Bureau. (2) Illinois Crop Reporting Service, Illinois State Department of Agriculture, and U. S. Department of Agriculture, cooperating; (3) Monthly data include an average of current month with eleven preceding months; (4) Federal Reserve Board; (5) National Industrial Conference Board. For explanations of computations, see Number 2, July, 1935.

TABLE A.—INDEXES OF BUSINESS CONDITIONS, SAME MONTH 1921-1929 = 100

	Whole-sale prices of all commodities (U. S.) ¹	Farm prices		Cash income to Illinois farmers		Prices paid by farmers for commodities bought (U. S.) ¹	Purchasing power of income to Illinois farmers	Factory payrolls in the United States ⁴	Cost of living in the United States ⁵	Purchasing power factor payro
		Illinois ²	United States ¹							
				Millions ¹	Indexes ³					
1929.....	97	109	103	\$548.6	108	100	108	112	99	113
1930.....	88	95	89	459.7	91	96	95	91	96	95
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1932.....	66	44	46	228.7	45	71	63	48	77	62
1933.....	67	47	49	276.7	55	70	79	51	74	65
1934.....	76	64	64	312.7	62	80	77	64	78	82
1935.....	82	88	76	378.1	75	82	91	73	82	85
1936.....	82	91	80	453.1	90	81	111	85	84	101
Jan., 1936...	80	84	76	33.0	74	80	92	79	82	90
Oct., 1936...	83	98	84	35.1	84	83	101	89	84	100
Nov., 1936...	84	101	84	42.1	87	83	105	93	84	111
Dec., 1936...	86	103	87	44.3	90	84	107	97	85	114
Jan., 1937....	86	106	91	....	..	84	..	97	85	114

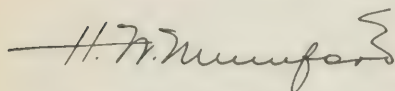
TABLE B.—PRICES AND PRICE INDEXES OF ILLINOIS FARM PRODUCTS

Product	Prices					Indexes: same month 1921-1929 = 100		
	Jan. average		Jan. 1936	Dec. 1936	Jan. 1937	Jan. 1936	Dec. 1936	Jan. 1937
	1910-14	1921-29						
Corn, bu.....	\$.52	\$.67	\$.49	\$.97	\$ 1.02	73	143	15
Oats, bu.....	.37	.42	.24	.45	.50	57	112	11
Wheat, bu.....	.94	1.32	.97	1.18	1.28	74	97	9
Barley, bu.....	.62	.64	.51	1.07	1.09	80	173	17
Hogs, cwt.....	7.18	8.66	9.30	9.60	9.90	107	115	11
Beef cattle, cwt..	5.46	7.45	8.20	7.60	8.00	110	96	10
Lams, cwt.....	5.88	11.17	9.20	8.10	8.90	82	73	8
Milk cows, head	53.00	70.00	54.00	56.00	60.00	77	77	8
Veal calves, cwt..	7.10	10.37	9.30	9.10	10.60	90	90	10
Sheep, cwt.....	4.20	6.07	3.85	3.15	4.00	63	54	6
Horses, head....	150.00	83.00	113.00	111.00	114.00	136	139	13
Butterfat, lb....	....	.44	.32	.32	.33	73	72	7
Milk, cwt.....	1.84	2.38	1.75	2.00	2.00	74	86	8
Eggs, doz.....	.28	.39	.22	.30	.21	57	64	5
Chickens, lb....	.10	.20	.17	.12	.14	85	63	6
Wool, lb.....	.21	.32	.27	.31	.33	85	90	10
Apples, bu.....	1.17	1.78	.90	1.50	1.45	51	91	8
Hay, ton.....	13.58	14.47	7.60	13.10	13.60	52	100	0
Potatoes, bu....	.75	1.30	.75	1.25	1.35	58	96	10
Illinois index of farm prices.....						84	103	10

¹⁻⁵For sources of data in tables see previous page.

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ILLINOIS FARM ECONOMICS

Department of Agricultural Economics, College of Agriculture and Agricultural Experiment Station, in cooperation with the Extension Service in Agriculture and Home Economics, University of Illinois

Urbana

March and April, 1937

Numbers 22 and 23

HEAR THESE INTERESTING DISCUSSIONS ON CURRENT ECONOMIC TOPICS

The University of Illinois Broadcasting Station, WILL, is now operating on a new wave length, with a frequency of 580 Kilocycles. Tune in on Fridays, 12:30 to 1 P.M.

May 7—Legislative Developments Affecting the Farmer: C. L. STEWART, H. C. M. CASE, F. A. PAINTER.

May 14—Dramatizing Farm Accounts: M. L. MOSHER, ED HARRIS, Miss SARAH JANE SHANK, J. B. CUNNINGHAM.

May 21—Crop Outlook: L. J. NORTON, E. J. WORKING.

May 28—What is Going on in Livestock Marketing?: R. C. ASHBY, L. H. SIMERL.

Business Conditions. Consumer incomes continue to increase with further advances in business activity and with higher wage rates in many lines of industry. Particularly important in recent months has been the expansion in the heavier industries which make durable consumer goods and goods used in further production. Activity in those lines of business which produce goods for immediate consumption is likewise well maintained.

While a large part of this business activity arises from domestic demand, a part comes from foreign demand which is largely for industrial rather than agricultural products. Back of this demand is the rearmament program of various nations, a program which reflects future destruction rather than progress, yet is likely to be a strong factor of demand during the next few months. Aside from increasing the demand for wheat and cotton its effect upon agriculture is largely indirect, through stimulation of domestic purchasing power. In the domestic market, activity in some lines, such as construction, may slow down because of rising costs. Activity in those lines of business which produce goods for consumption is well maintained. This situation is favorable to agriculture at this time since these conditions broaden the demand for food products and other raw materials, and in the absence of heavy surpluses, tend to maintain favorable price levels.

There are, however, some elements of uncertainty in the picture which tend to affect general stability and the purchasing power of various groups. Such, for example, is the prevalence of strikes, the increase in prices of some lines of consumer goods, and the decreasing market value of government bonds.

At the present time farmers who sell grain are enjoying higher prices for their products, and livestock producers are at a disadvantage but farmers have not yet felt the full force of increased costs of industrial goods, which may be anticipated later in the year as these higher costs are passed on to consumers.

INDICATED CROP ACREAGES FOR 1937. Illinois farmers plan to plant about the same acreage of spring-sown crops this year as that harvested annually from 1928 to 1932, the marked increase in soybeans displacing the production in other spring-sown crops (Table 1). The total acreage of spring-

TABLE 1.—RECENT HARVESTED ACREAGES AND PROSPECTS FOR 1937
(Thousand acres)¹

Crop	Illinois				United States			
	Harvested			Planned	Harvested			Planned
	1928-32	1935	1936	1937	1928-32	1935	1936	1937
Corn.....	9 323	8 273	9 266	9 173	103 419	95 804	92 829	94 840
Oats.....	4 313	3 799	3 495	3 355	40 015	39 831	33 213	35 660
Spring wheat.....	133	26	34	33	15 610	15 565	9 653	18 194
Barley.....	410	80	100	130	12 645	12 371	8 322	10 901
Soybeans.....	681	2 270	1 793	2 098	2 979	6 640	5 635	6 300
Cowpeas.....	174	247	165	165	1 869	2 319	3 263	3 336
Potatoes ²	50	50	43	44	2 937	3 124	2 668	2 806
Spring sown crops....	15 084	14 745	14 896	14 998	179 474	175 654	155 583	172 037
Tame hay.....	2 646	2 858	2 943	2 674	55 153	55 647	57 055	55 967

¹From U. S. D. A. Crop Report.

²U. S. total of 37 late and intermediate potato states.

TABLE 2.—STOCKS OF GRAINS ON FARMS, APRIL 1, ILLINOIS AND UNITED STATES
(Thousand bushels)¹

Crop	Illinois			United States		
	1928-32	1936	1937	1928-32	1936	1937
Corn.....	115 808	137 872	59 378	754 491	816 058	411 980
Wheat.....	3 700	2 405	2 004	127 770	98 978	71 723
Oats.....	40 031	41 485	32 871	387 912	493 787	287 745

¹U. S. D. A. Crop Report, April 1.

sown crops in 1937 promises to be about one percent greater than in 1936 and 1 percent greater than in 1935, if intentions are carried out. Despite the favorable prices for corn and oats, corn acreage will be less than in 1936 but more than in 1935; oats acreage, however, appears to be gradually diminishing. The acreage of soybeans will exceed that in 1936 but fall below the large acreage in 1935.

The acreage of tame hay will be about the same as in 1928-32, altho 6 and 1 percent respectively below 1935 and 1936 and late winter-killing of many legume will have a tendency to reduce actual acreage below the estimates.

For the country as a whole the indicated corn acreage is 8 percent less than for the period 1928-32, and oats 11 percent less. Both these crops will exceed the 1936 acreages but fall below those for 1935.

Production of winter wheat in 1937 is estimated at 656 million bushels in the U.S.D.A. Crop Report for April. This is 27 percent above the short crop of 1936, and 5 percent above the average for the period, 1928-1932. For Illinois the indications point to a crop of 41.7 million bushels, or 16 percent above the 1936 crop and 36 percent above the five-year average.

Stocks of Grain on Farms. Stocks of corn and wheat on farms are the lowest for April 1 for the 12 years for which figures are available. Stocks of corn are 55 percent of the five-year average, 1928-1932, wheat 56 percent, and oats 74 percent. On Illinois farms stocks of corn and wheat were even shorter, corn being but 51 percent of average and wheat 54 percent. Stocks of oats, however, were 82 percent of average (Table 2).

Feed Grains—Corn, Oats and Barley. While intentions to plant feed grains indicate an acreage less than was planted in 1936, production will depend largely upon how much is finally planted and the weather conditions during the growing season. In three of the last four years losses from drouth have been heavy, and prospective carryover at the end of the crop year (July 1) will be much lighter than usual. On January 1, 1937, numbers of grain-consuming animals, excluding poultry, on farms were 11 percent below the average for 1928-32. With acre yields equal to those of that period this year's total production of feed grains would approximate the average amounts per animal after allowing for the smaller carryover this year. This would indicate lower prices for feed grains, some expansion in livestock numbers, and a reduction of feed grain imports. Should weather conditions or insect damage greatly affect the production on the indicated acreage, a continuance of favorable grain prices may result with curtailment of livestock expansion and continued grain imports.

Soybeans. With average yields, the marked increase in soybean acreage indicates a materially larger bean crop unless shortage of hay or pasture should divert more than the usual acreage for hay. The present high price of soybeans is dependent upon high prices for oil and meal. A strong demand exists for oil for edible uses, this oil replacing other edible vegetable and animal fats whose supplies are short. This demand appears likely to be maintained during this year. Soybean meal competes directly as a feed with cottonseed and linseed meals. The prospect of an increased supply of such feeds this year forecasts lower prices, which doubtless will tend to weaken prices of soybeans, since the value of meal usually is more than half of the combined value of oil and meal.

Wheat. With average abandonment the total harvested acreage of wheat in the United States is expected to be between 67 and 68 million acres. The five-year average, 1928-32, was 60 millions, and in 1936 only 48.8 millions. With average yields of spring wheat the indicated acreage would produce 260 million bushels of spring wheat, which added to the indicated production of 656 million bushels of winter wheat, would make a total of 916 million bushels, or enough to provide for considerable export. Should 1936 conditions be repeated with heavy abandonment of spring wheat and generally low yields, total production might equal only domestic requirements and supply a carryover equal to or a little larger than that in prospect on July 1, which is expected to be about 100 million bushels. In the latter case, the United States would be on a self-sufficient basis. Obviously the production of both winter and spring wheat is subject to weather conditions and to some extent to insect damage.

Hogs. The number of hogs on farms January 1, 1937, was estimated at 42,774,000 head, or about the same as a year earlier. This was 69 percent of the large numbers on hand January 1, 1933 before the heavy liquidation took place, and about 10 percent more than at the low point January 1, 1935. Sows to farrow this spring were forecasted as 5 percent under a year ago. During much of the past year the corn-hog ratio has not encouraged expansion in numbers. A prospective increase in numbers appears likely in fall farrowings, but this will not affect marketings until 1938. Marketings of the 1936 fall pig crop are likely to be fairly heavy in May from areas where feed is fairly plentiful, with a tendency to hold back supplies where feed is scarce until new corn is available for finishing.

During the past year, large storage stocks of pork have been accumulated, those of pork 68 percent above April 1 a year ago, and 21 percent larger than the year April 1 average, and those of lard showing corresponding increases of 83 and 104 percent respectively. This increase in storage holdings over a year ago represents the equivalent of 2,800,000 hogs of average market weight. With the anticipated reduced movement to market during the next few months but the movement of very large storage stocks, the supply of hog products available up

to the end of September will be somewhat larger than in the same period last year and much larger than two years ago. In view of the current increase in pay-rolls and in consumer demand, however, it appears likely that hog prices will be maintained during the spring months, with a summer rise at least as large as usual. Imports of pork have been relatively high thus far in 1937, altho they represent only a very small proportion of domestic slaughter during that period.

Beef Cattle. Cattle numbers continued to decline during 1936, estimated numbers on January 1, 1937, being 10 percent under those of January 1, 1934, but still 16 percent above the previous low point in the cattle cycle in 1928. Cattle on feed on April 1 in 11 Corn Belt states were 33 percent under a year earlier. While slaughter figures are relatively high, in part because of feed shortage, the total slaughter for the year is expected to be less than in 1936, but considerably larger than the 10-year average, 1924-1933.

The movement of grain-fed cattle to market has been accelerated by high feed prices and feed shortage and prospects are for a higher than usual proportion of those now on feed to be marketed before July 1, with a relatively smaller market supply after that date.

The lower grades of cattle normally decline in price in late spring and early summer. Because of strong consumer demand for meats and a probable increased demand for replacement stock this seasonal decline is likely to be less than usual.

Imports of cattle, calves and beef have been relatively large. Despite imports and relatively high slaughter figures prices have advanced, and a continued strong demand for beef appears likely.

Dairy Production. Numbers of dairy cows were further reduced in 1936 giving a total reduction of 7 percent during the past three years. Apparently the low point has been reached with some increase in prospect during the next few years. Milk production is being curtailed by short supplies of feed and unfavorable price ratios between prices of feeds and of dairy products, and a larger than usual proportion of milk is going into direct consumption and less than usual into manufactured uses. Production trends immediately ahead will depend upon pasture conditions. As the year advances more favorable price relationships of feeds and dairy products are anticipated for dairymen.

Poultry and Eggs. High feed prices apparently are resulting in a greater than usual seasonal reduction in size of farm flocks and in smaller hatchings of chicks. This will tend to reduce future marketings of both eggs and poultry. The decline in egg prices was more than seasonal between December 15 and January 15, but less than usual during the subsequent month. The movement of eggs into storage began early this year, and since March 1 has exceeded the storage accumulations of the same period in 1936 by 21 percent. Indications are for sustained egg prices for the summer months and an improvement in the feed-egg ratio later in the year.

HAVE SOYBEANS MOVED UP?

Soybeans have moved up from the feed lot to the paint factory and finally to the kitchen. Statements such as this have often been made in the past two years and the facts back of them are of great importance to soybean growers.

Ten years ago most of the harvested soybeans were used for seed and feed, only a little over 6 percent being crushed to obtain oil. For the crop year 1935-36 however, approximately 65 percent of a very greatly increased production was crushed in the United States or exported to be crushed abroad.

Up until two or three years ago most of the soybean oil consumed in this country was used in non-edible form. Paint, varnish, printing ink, linoleum and oilcloth accounted for about 50 percent and other inedible products 44 percent of

the factory consumption in 1929, whereas only about 6 percent was used for oleomargarine, lard substitutes, and other edible purposes.

Recently by far the most of the soybean oil consumed in the United States was used for edible purposes. Thus in 1936 the utilization for paint and varnish, printing ink, linoleum and oilcloth combined amounted to only 9 percent of the total factory consumption. In the same year the manufacture of oleomargarine, lard substitutes and other edible products used 81 percent of the total.

From the figures just cited it might be assumed that soybean oil is being used less as a drying oil than formerly. As shown by Figure 1 there has instead been a fairly steady increase in its use for such purposes (paint, varnish, printing ink,

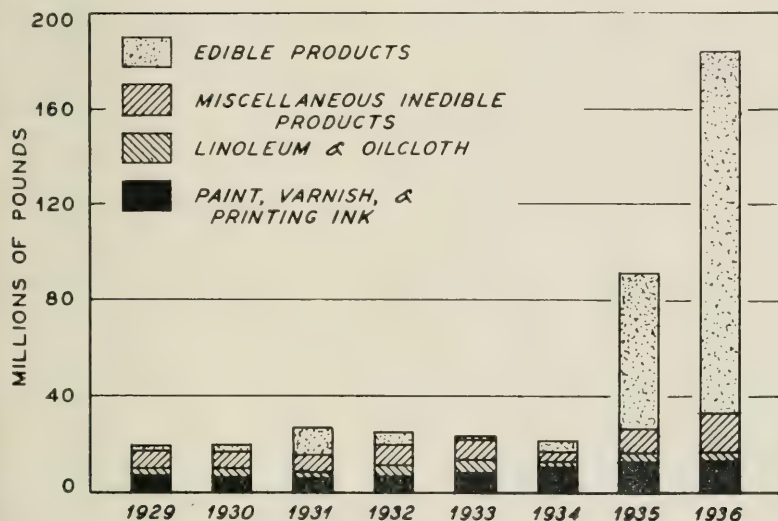


FIG. 1.—AMOUNTS OF SOYBEAN OIL USED ANNUALLY FOR VARIOUS PURPOSES IN THE UNITED STATES, 1929-1936

linoleum and oilcloth). On the other hand, there has been a marked increase in the amount of soybean oil used in the manufacture of lard substitutes.

Why have these changes taken place? Perhaps the first thought which will come to mind is that there may have been improvements made in ways of treating soybean oil for use in food products. True enough, there have been improvements, and important ones too, in methods of using soybean oil for edible purposes. This, however, is not the whole of the story. An examination of Figure 1 will show that the increase in utilization for edible products was not a gradual one over the past eight years, but that most of it took place in 1935 and 1936. Improvements in the technique of industrial as well as agricultural production are usually put into practice gradually and are not likely to result in such sudden increases. Then, too, there was a marked increase in the amount of soybean oil used for edible products in 1931, but by 1933 it had fallen back to even below the level of 1929.

A more important factor in causing the great increase in the use of soybean oil for edible purposes is the larger production of soybeans. The total soybean acreage of the United States has increased more than three-fold in the past ten years and the acreage from which beans have been gathered was about five times as large in the past two years as it was ten years earlier. With more beans available for crushing more oil has been produced and used.

The increase in the amount of soybean oil available has also been largely responsible for the change in the relative amounts used for different purposes.

Altho there has been a fairly steady growth in the amount used as a drying oil (for paints, varnish, etc.), this market is relatively restricted. Much larger amounts of the fats and oils are used for edible purposes and for soap.

In their volume of production and consumption by far the three most important fats and oils in the United States are lard, butter and cottonseed oil, which together provide about 60 percent of the total consumption of all fats and oils in the United States. Butter has a rather distinct market and is produced and consumed in fairly constant volume in spite of the widespread use of oleomargarine. Hence lard and cottonseed oil are of primary importance in the supply

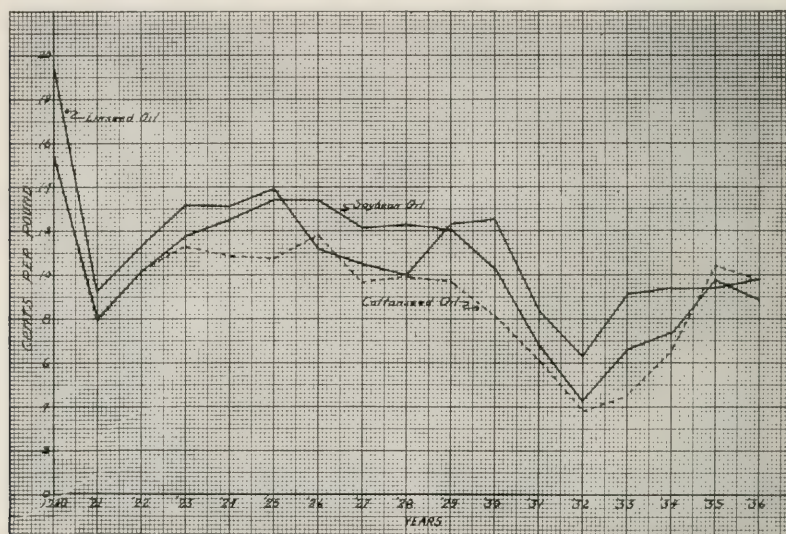


FIG. 2.—AVERAGE PRICE PER POUND OF COTTONSEED, LINSEED AND SOYBEAN OILS, AT NEW YORK (AVERAGE PRICES FOR YEAR ENDED DECEMBER)

of non-drying oils and it is largely with these that soybean oil must compete if it is to have a place in that market.

Tables 3 and 4 show respectively the production and consumption of soybean oil as compared with lard and cottonseed oil on the one hand, and with linseed oil on the other hand. It is to be noted how small the production and consumption of soybean oil is compared with cottonseed oil and lard. On the other hand in the past two years the total production and consumption of soybean oil has been quite large compared with linseed oil, which is the most important drying oil.

It is fortunate for soybean growers that soybean oil can compete in both the drying and the non-drying oil fields. However, it must be borne in mind that in order to compete successfully its price must not be too high compared with that of its competitors. In Figure 2 is charted the course of soybean oil prices compared with the prices of its two outstanding competitors, linseed oil and cottonseed oil. In 1935 and 1936 the price of cottonseed oil was higher than that of either soybean or linseed oil. Those years, furthermore, are the only ones in which soybean oil prices averaged lower than cottonseed oil. Turning back to Figure 1 we note that these same years were the ones in which we had a large increase in the use of soybean oil for edible purposes. It is for such uses that soybean oil must compete with cottonseed oil.

These facts suggest that if soybean oil is to continue to have an important place in the edible oil industry it must sell for about the same price as, or perhaps

TABLE 3.—UNITED STATES PRODUCTION OF SPECIFIED FATS AND OILS FROM DOMESTIC AND IMPORTED MATERIALS

	Lard (mill. lbs.)	Cottonseed oil (mill. lbs.)	Total lard and cottonseed oil (mill. lbs.)	Soybean oil (mill. lbs.)	Linseed oil (mill. lbs.)
1929.....	2 598	1 584	4 182	11	764
1930.....	2 344	1 616	3 960	14	516
1931.....	2 385	1 417	3 802	39	521
1932.....	2 463	1 571	4 034	39	327
1933.....	2 569	1 400	3 969	27	406
Five-year aver., 1929-1933..	2 472	1 518	3 989	26	507
1934.....	2 163	1 224	3 387	35	371
1935.....	1 312	1 184	2 496	105	502
1936.....	1 676	1 245	2 921	225	455

TABLE 4.—APPARENT CONSUMPTION IN THE UNITED STATES OF SPECIFIED FATS AND OILS

	Lard (mill. lbs.)	Cottonseed oil (mill. lbs.)	Total lard and cottonseed oil (mill. lbs.)	Soybean oil (mill. lbs.)	Linseed oil (mill. lbs.)
1929.....	1 735	1 585	3 320	13	789
1930.....	1 701	1 584	3 285	18	544
1931.....	1 784	1 315	3 099	35	479
1932.....	1 898	1 240	3 138	39	358
1933.....	1 866	1 295	3 161	32	380
Five-year aver., 1929-1933..	1 797	1 404	3 201	27	510
1934.....	1 719	1 566	3 285	31	417
1935.....	1 262	1 431	2 693	103	470
1936.....	1 471	1 340	2 811	226	484

even less than, cottonseed oil. In past years cottonseed oil has usually been cheaper than linseed oil. The unusually low level of production of lard and cottonseed oil has been largely responsible for the higher price of cottonseed oil in 1935 and 1936 and for its being unusually high compared with linseed oil.

What will happen to both soybean and cottonseed oil prices in the next few years depends quite largely upon the production of lard and cottonseed oil. Undoubtedly the production of both of these will increase, but the extent of the increase remains to be seen. It is likely, however, that cottonseed oil prices will again be lower than linseed oil.

If soybean oil is to maintain the importance it has gained during the last two years it will presumably be at the expense of selling at a lower price relative to other oils than it did prior to 1934. Thus, altho soybean oil consumption may be said to have moved up to the edible class; from the point of view of price it would perhaps be better to say that soybean oil has moved down from the drying oil to the edible oil class.

The above, however, should not be taken to indicate that there will be a very drastic decline of soybean oil prices. While the extent of any decline will depend on the extent to which the production of lard and cottonseed oil increase, it should be borne in mind that we are in a period of generally increasing demand which will tend to counteract in part the future production increases. Also the recent increase in the capacity of soybean oil mills and the improved methods of using soybean oil have been improving its competitive position relative to both cottonseed and linseed oil.

E. J. WORKING

Original data for Tables A and B were obtained from the following sources: (1) Bureau of Agricultural Economics, U.S.D.A. Beginning with January, 1936, cash income to Illinois farmers includes the revised estimates of the Bureau; (2) Illinois Crop Reporting Service, Illinois State Department of Agriculture, and U. S. Department of Agriculture, cooperating; (3) Monthly data include an average of current month with eleven preceding months; (4) Federal Reserve Board; (5) National Industrial Conference Board. For explanations of computations, see Number 2, July, 1935.

TABLE A.—INDEXES OF BUSINESS CONDITIONS, SAME MONTH, 1921-1929 = 100

	Whole-sale prices of all commodities (U. S.) ¹	Farm prices		Cash income to Illinois farmers		Prices paid by farmers for commodities bought (U. S.) ¹	Purchasing power of income to Illinois farmers	Factory payrolls in the United States ⁴	Cost of living in the United States ⁵	Purchasing power of factory payrolls
		Illinois ²	United States ³							
				Millions ¹	Indexes ³					
1929.....	97	109	103	\$548.6	108	100	108	112	99	113
1930.....	88	95	89	459.7	91	96	95	91	96	95
1931.....	74	65	61	309.5	61	82	74	69	86	80
1932.....	66	44	46	228.7	45	71	63	48	77	62
1933.....	67	47	49	276.7	55	70	79	51	74	69
1934.....	76	64	64	312.7	62	80	77	64	78	82
1935.....	82	88	76	378.1	75	82	91	73	82	89
1936.....	82	91	80	453.1	90	81	111	85	84	101
Feb., 1936...	81	87	77	29.5	75	80	94	76	82	93
Nov., 1936...	84	101	84	42.1	87	83	105	93	84	111
Dec., 1936...	86	103	87	44.3	90	84	107	97	85	114
Jan., 1937...	86	106	91	41.5	91	84	108	97	85	114
Feb., 1937...	87	108	91	34.5	92	84	110	98	86	114

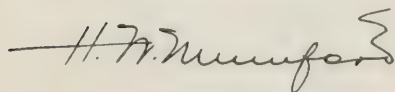
TABLE B.—PRICES AND PRICE INDEXES OF ILLINOIS FARM PRODUCTS

Product	Prices					Indexes: same month 1921-1929 = 100		
	March average		March 1936	Feb. 1937	March 1937	March 1936	Feb. 1937	March 1937
	1910-14	1921-29						
Corn, bu.....	\$.54	\$.69	\$.51	\$ 1.05	\$ 1.06	74	152	154
Oats, bu.....	.38	.42	.25	.50	.49	60	119	117
Wheat, bu.....	.94	1.32	.95	1.29	1.29	72	96	98
Barley, bu.....	.65	.66	.55	1.10	1.11	83	169	168
Hogs, cwt.....	7.64	9.71	9.80	9.80	9.70	101	108	100
Beef cattle, cwt..	5.82	7.67	7.50	8.00	8.10	98	109	106
Lambs, cwt.....	6.16	11.57	8.60	9.00	10.30	74	80	89
Milk cows, head	55.00	73.00	55.00	60.00	60.00	75	84	82
Veal calves, cwt..	7.32	10.70	8.30	9.30	9.10	78	87	85
Sheep, cwt.....	4.64	6.54	4.20	4.30	5.10	64	69	78
Horses, head....	154.00	89.00	114.00	115.00	115.00	128	132	129
Butterfat, lb.....	.42	.42	.30	.33	.34	71	79	80
Milk, cwt.....	1.63	2.26	1.70	2.00	2.00	75	87	88
Eggs, doz.....	.19	.23	.16	.19	.19	73	63	86
Chickens, lb.....	.11	.21	.17	.14	.15	81	66	69
Wool, lb.....	.20	.32	.29	.33	.34	90	103	106
Apples, bu.....	1.22	1.94	1.05	1.70	1.80	54	91	93
Hay, ton.....	13.95	14.35	8.20	14.60	14.80	57	102	103
Potatoes, bu.....	.78	1.30	.90	1.50	1.50	69	114	115
Illinois index of farm prices.....						82	108	107

¹⁻⁵For sources of data in tables see previous page.

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ILLINOIS FARM ECONOMICS

Department of Agricultural Economics, College of Agriculture and Agricultural Experiment Station, in cooperation with the Extension Service in Agriculture and Home Economics, University of Illinois

Urbana

May and June, 1937

Numbers 24 and 25

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Friday, June 25—Summary of Farm Incomes: R. R. HUDELSON and P. E. JOHNSTON.

Friday, July 2—Summer Apples Move to Market: J. W. LLOYD and S. W. DECKER.

Friday, July 9—Why Do Milk Costs Vary?: R. H. WILCOX, C. S. RHODE, and B. W. BAIN.

Friday, July 16—The Current Economic Situation as it Affects the Farmer: L. J. NORTON and J. E. WILLS.

Friday, July 23—Air Photography in Relation to Land Problems: J. B. ANDREWS and C. L. STEWART.

Friday, July 30—Farm Renting Problems: H. C. M. CASE and JOSEPH ACKERMAN.

Illinois Farm Incomes Increased in 1936. Farm incomes in Illinois were higher in 1936 than for any other year of the last five. Net receipts per acre for Illinois account keepers averaged \$10.59 in 1936 as contrasted with \$8.68 in 1935 and \$7.26 in 1934 (Table 1). The accounting farms averaged larger in 1936 than in either 1934 or 1935. Cash farm incomes, cash farm expenditures, and increases in inventory were also larger in 1936. On the average accounting farm in 1936 the cash balance above cash expenses was \$2,340 per farm. This sum represents the amount available for interest payments, family living expenses, debt retirement, and investments.

Incomes are larger on accounting farms than on the average of all farms in the state, because such farms are larger and farmers who keep accounts are more efficient than the average. The average farm in the state contains 137 acres according to the 1935 Census, while the average (weighted) accounting farm is larger by 80 acres per farm.

Records secured in 1936 from a large number of farmers in five selected townships, in different parts of the state, indicated that accounting farms had incomes of \$650 to \$1,800 a farm higher than all farms in the area. The difference was smallest in southern Illinois and largest in the central and northern part.

Although crop yields for the state as a whole averaged only 80 percent of the 1924-1933 average, grain prices advanced during the year more than enough to make up for the lower production. Drouth, grasshoppers, and chinch bugs combined to make crop yields very spotted in 1936. Only the counties of Carroll, Lee, and Stephenson had combined yields of corn, oats, wheat, soybeans, and hay which averaged as high as the ten-year period. Other counties in the northwestern part of the state had relatively much better yields than the state average. In the west central part of the state yields were below average, while in a group of 12

TABLE 1.—SELECTED ITEMS OF INCOME AND EXPENSE ON ACCOUNTING FARMS IN ILLINOIS FOR 1934, 1935, AND 1936
(Weighted Average for the State)

	1934	1935	1936
Acres per farm.....	221	216	227
Cash income per farm.....	\$3,606	\$4,364	\$5,374
Cash expenditures per farm.....	1,819	2,607	3,034
Cash balance per farm.....	1,787	1,757	2,340
Inventory increase.....	485	780	802
Cash balance plus inventory increase.....	2,272	2,537	3,142
Unpaid labor (operator and family).....	670	666	740
Net farm income.....	\$1,602	\$1,871	\$2,402
Gross receipts per acre ¹	\$ 15.18	\$ 17.64	\$ 19.69
Total expense per acre ²	7.92	8.96	9.10
Net receipts per acre.....	7.26	8.68	10.59

¹Includes inventory changes. ²Includes unpaid labor.

TABLE 2.—VARIATION IN INCOME AND EXPENDITURES ON ACCOUNTING FARMS IN ILLINOIS, BY FARMING TYPE AREAS, 1936

Farming type areas	Acres per farm	Cash income per farm	Cash expenditures	Cash balance	Inventory increase	Net ¹ receipts per acre
I. Chicago Dairy Area.....	193	\$5,912	\$3,601	\$2,311	\$1,237	\$14.37
II. Northwestern, Mixed Livestock.....	194	6,083	3,472	2,611	1,382	16.43
III. Western, Livestock and Grain.....	224	6,619	3,823	2,796	903	13.13
IV. East Central, Cash Grain.....	260	6,709	3,360	3,349	853	13.16
V. West Central, General Farming.....	251	5,400	3,372	2,028	687	7.71
VI. St. Louis Dairy and Wheat Area.....	205	3,437	2,024	1,413	499	5.82
VII. South Central, Mixed Farming.....	204	3,145	1,948	1,197	458	4.97
VIII. Wabash Valley, Grain and Livestock..	202	3,449	2,042	1,407	620	7.47

¹Cash balance plus inventory increase less unpaid labor, divided by number of acres.

counties in the south central part of the state yields were less than 58 percent of average. Farm incomes in 1936 were closely correlated with crop yields.

Since grain prices advanced rapidly in 1936 a large grain inventory at the beginning of the year was advantageous. Many account keepers had high earnings in 1936 because they inventoried corn at the beginning of 1936 at 45 cents a bushel and sold it later in the year for as high as \$1.00 per bushel. Those areas which had good crop yields in 1935 reaped a part of the benefit by selling grain in 1936. Grain inventories, on accounting farms, contained less bushels of grain on January 1, 1937, than a year earlier, although the total value was higher. There were 1,732 bushels of corn and 522 bushels of oats on the average accounting farm on January 1, 1936, but only 1,016 bushels of corn and 453 bushels of oats on January 1, 1937. In the western part of the state where the corn crop was very poor in 1936 the accounting farmers had less than half as much corn on hand January 1, 1937, as a year earlier. Farmers in the areas affected by drouth in 1936 will tend to have low incomes in 1937 because of a shortage of feed coupled with a high price for feeds purchased.

The wide variation in earnings in different sections of the state is shown in Table 2. Net receipts per acre averaged highest in the mixed livestock section of the northwestern corner of the state and lowest in the south central section. The cash balance averaged highest in the cash-grain area of east-central Illinois where the farms are large. Inventory increases, however, were less in this area than in the livestock areas. Livestock prices advanced much less than grain prices in 1936 yet the average net receipts per acre were the same for Areas III and IV.

A wide range occurred in earnings on the accounting farms in 1936. Crop yields were spotted in almost every county and the differences in yields between the most profitable and least profitable groups of farms was greater than usual. This fact tended to obscure the influence of other factors which normally have an important influence on farm earnings, such as the volume of business, kind of crops grown, the amount of livestock, the efficiency of livestock, and efficient use of labor and power; these are items which the careful farm manager watches closely.

P. E. JOHNSTON

The Wheat Situation. With prospects of the largest wheat crop in the United States since 1931, the outlook for the crop is of interest because of the unusual conditions present. It is expected that the carryover of old wheat in this country on July 1 will be about 90 million bushels, or the smallest in the past 15 years. For the five-year period, 1924-1928, the average carryover was 114 million bushels; for the next six years, 1929-1934, it averaged 310 million bushels, reaching the highest point in 1933, with 378 million bushels. For the last two years

TABLE 3.—DISAPPEARANCE OF WHEAT IN THE UNITED STATES AND EXPORTS FOR SPECIFIED YEARS (THOUSAND BUSHELS)¹

Crop year beginning July	Seed	Fed on farms of growers	Foods and commercial feeds	Total used	Exports ²
1923-1929 (7 year average).....	81,862	49,204	494,679	625,745	170,702
1930-1932 (3 year average).....	80,699	151,942	507,545	740,186	91,940
1933-1935 (3 year average).....	82,117	84,462	482,183	648,762	16,269

¹Data from Bureau of Agricultural Economics, U.S.D.A. ²Wheat and flour from domestic wheat.

the carryover has been 148 and 138 million bushels. It is evident that there is no domestic surplus of old wheat.

Acreages of the new crop for harvest in this country are expected to be 47 millions of winter wheat and 21 millions of spring wheat, or a total of 68 million acres. This is a marked increase over the harvested acreage last year of 49 millions and 51 millions two years ago. While prospective yields per acre are generally indicated as below average, total production is indicated by June 1 condition to be about 650 million bushels of winter wheat and 175 to 200 million bushels of spring wheat, or a total of 825 to 850 million bushels. The final outturn is, of course, subject to effects of later weather conditions and other causes influencing yield which cannot be anticipated.

It is evident from the figures on domestic uses (Table 3), that the production indicated would leave a surplus of about 150 million bushels for export, after allowing for domestic uses and replenishment of the present small carryover. Domestic utilization of wheat has been fairly constant for a period of years except that large amounts have been fed on farms in years when wheat was very low in price relative to feed grains. The probable surplus for export is greater than the amount shipped out since 1929-30, altho somewhat below the average for the seven-year period, 1923-1930. (Table 3)

The surplus prospects in this country are not likely to result in a burdensome supply of wheat for the world. During the last three years world carryover has been reduced to about the pre-depression level, since production has been less than utilization. For the current year wheat acreage in the Northern Hemisphere, excluding Soviet Russia and China, is generally below the last two years. Yields in India are favorable, with some increase indicated in the total production.

World wheat prices have improved steadily since early 1933, in line with generally improving conditions and reduced production. Improvement in world

TABLE 4.—SELECTED ITEMS REGARDING PROPERTY, DEBTS, AND CASH INCOMES OF 348 OWNER-OPERATORS KEEPING FARM ACCOUNTS IN ILLINOIS IN 1935

	Percent which debts are of property:				
	No debts	1-24.9	25-49.9	50 and over	All farms
Number of farms.....	79	107	101	61	348
<i>Property and debts</i>					
Acres in farms operated.....	204	209	216	195	208
Value of land and farm improvements.....	\$20,492	\$24,653	\$27,396	\$23,412	\$24,287
Value of working capital.....	5,781	6,129	6,716	5,773	6,158
Value of total capital.....	\$26,273	\$30,782	\$34,112	\$29,185	\$30,445
Long-term debts.....	0	1,756	10,698	15,817	6,417
Short-term debts.....	0	1,258	1,485	2,618	1,277
Total debts.....	0	\$ 3,014	\$12,183	\$18,435	\$ 7,694
Net worth.....	\$26,273	\$27,768	\$21,929	\$10,750	\$22,751
<i>Income</i>					
Total cash income.....	\$ 4,541	\$ 5,017	\$ 5,153	\$ 5,029	\$ 4,931
Total cash expense.....	2,828	3,127	3,284	2,998	3,071
Net cash income.....	\$ 1,713	\$ 1,890	\$ 1,869	\$ 2,031	\$ 1,870
Interest (calculated).....	0	135	498	797	326
Net cash after interest.....	\$ 1,713	\$ 1,755	\$ 1,371	\$ 1,234	\$ 1,544
<i>Ratios and relationships</i>					
Percent of long-term debt to land and improvements.....	0	7.1%	39.0%	67.6%	26.4%
Value productive livestock.....	\$ 2,110	\$ 2,216	\$ 2,650	\$ 2,229	\$ 2,320
Value feed and grain.....	1,689	1,824	1,992	1,636	1,809
Margin between productive livestock and short-term debt.....	2,110	958	1,165	Minus 389	1,043
Times value of farm property is of gross cash income.....	5.8	6.1	6.6	5.8	6.2

prices has been marked during the current season reflecting increased demand and the lowest supplies of recent years.

In view of these conditions world prices for 1937-38 may be expected to be maintained at about 1936-37 levels unless total production greatly exceeds that of last year, and higher prices are not improbable. In the United States prices are about on an export basis, and unless there is a further decline in crop prospects or legislative developments which affect prices, they are likely to remain on an export basis during a considerable part of the coming crop year.

R. C. Ross

Cash Incomes and Debt Ratios of Illinois Farmers in 1935. Any sound borrowing must be based on capacity to pay. Otherwise one has a frozen debt which will become a fixed charge. Many lenders, however, are more interested in the property which secures the debt than in the incomes of the borrower. Unless the individual operating the property can make it earn sufficient to repay the debt, a loan based on property alone will become frozen. Such a loan can only be collected by sale of the property or shifting it over to another lender. In spite of the willingness of lenders to make loans in this manner, any sound program for financing farmers must be based on their capacity to pay over a reasonable period.

Is there any relationship between the debts and incomes of farmers? Some figures collected from farm account keepers in Illinois in the summer of 1936 throw some light on this question. When the farm accounts for 1935 were returned, information was obtained from 1,055 of the cooperating farmers as to the debts they owed. From this information and the farm accounts, it was possible to set up a financial statement for each operator and to determine the ratio between debts and property for each. Certain items for the 348 owner-operators, grouped according to the ratio of debt to property, are shown in Table 4 and similar

TABLE 5.—SELECTED ITEMS REGARDING PROPERTY, DEBTS, AND CASH INCOMES OF 429 TENANT-OPERATORS KEEPING FARM ACCOUNTS IN ILLINOIS IN 1935

	Percent which debts are of property:				
	No debts	1-24.9	25.0-49.9	50 and over	All farms
Number of farms.....	160	173	65	31	429
Acres operated.....	235	249	233	211	239
<i>Property and debts</i>					
Value of working capital (which is also total capital).....	\$5,358	\$5,612	\$5,291	\$4,238	\$5,369
Short-term debts (total).....	0	661	1,752	3,251	767
Net worth.....	\$5,358	\$4,951	\$3,539	\$ 987	\$4,602
<i>Income</i>					
Tenant's cash farm income.....	\$4,282	\$3,654	\$3,771	\$3,308	\$3,881
Tenant's cash farm expense.....	2,559	2,777	2,905	2,222	2,675
Tenant's net cash income.....	1,723	877	866	1,086	1,206
Interest (calculated).....	0	28	79	155	34
Net cash after interest.....	\$1,723	\$ 849	\$ 787	\$ 931	\$1,172
<i>Ratios and relationships</i>					
Value of productive livestock.....	\$1,750	\$1,948	\$1,747	\$1,563	\$1,816
Value of feed and grain.....	1,455	1,411	1,337	991	1,386
Margin between prod. livestock & debt	1,750	1,287	Minus 5	Minus 1,688	1,049
Times value of farm property is of gross cash income.....	1.3	1.5	1.4	1.3	1.4

figures for 429 tenant-operators are shown in Table 5. An analysis of data for the 278 part-owners is omitted for lack of space.

The owner-operators when grouped according to debts, were distributed as follows: no debts—79; debts from 1-25 percent of property—107; debts from 25-50 percent of property—101; and debts over 50 percent of property—61. Long-term debts represented only slightly over one-fourth of the value of land and improvements and short-term debts about one-fifth of working capital.

These owners operated 208 acres of land, on the average, which, with the improvements (exclusive of the house), was valued at \$24,287 or \$117 per acre. They also had working capital (work stock, machinery and equipment, productive livestock, feed and grain) valued at \$6,158. The value of land, improvements, and working capital per farm increased as the proportion of indebtedness increased until debts reached 50 percent. This indicates that up to that point, farmers have been able to expand the scope of their operations by borrowing. Above that point apparently credit is more difficult to obtain.

The net cash income from farming was \$1,870 for the owners. The calculated interest averaged \$326, leaving \$1,544 for living expenses, debt repayments and savings. Assuming an average cash living expense of \$1,000, these farms had substantial debt-paying capacity, but since income varied greatly from farm to farm, the capacity to pay debts also varied.

There was apparently little relationship between income and debt ratios. The owners out of debt had somewhat smaller cash incomes, while those with heaviest debts had somewhat higher incomes. The out-of-debt group includes many farmers who are in comfortable circumstances and do not have the incentive to push their farm businesses. The reverse is true for the group most heavily in debt, who have to develop incomes to meet heavy fixed charges. Whether these farms are being pushed to the point where their soils are being depleted has not been studied. This is of vital importance, however, to both borrower and lender.

The cash available after interest was paid decreased as debt ratios increased. For the two groups with highest debts the cash income after interest was

deducted was a little over \$100 per month. Thus debt-paying capacity of these farms is low after living expenses are paid.

The value of productive livestock, feed and grain increased until debts equaled 50 percent of property. Many of the owners in the group with debts over 50 percent of property are stretching their short-term credit to the limit to maintain work stock and equipment and probably to meet fixed charges. The short-term debts of this group exceeded the value of their productive livestock by \$389. At their 1935 rate of earnings at least 10 years would be required to pay off their short-term debts after farm expenses and interest are paid, allowing \$1,000 for cash living expenses.

The debt burdens of the tenants were much less in relation to their property and earnings than those of the owners (Table 5). The 429 tenant farms were distributed, when grouped by their debts, as follows: no debts—160; debts from 1-25 percent of property—173; debts from 25-50 percent of property—65; and, debts 50 percent and over—31. The average debt was about 14 percent of the property compared with 25 percent for owners. The tenants operated larger farms in an effort to build up their individual incomes. The average was 239 acres, compared with 208 acres for the owners, and was smallest for the most heavily indebted group. The value of working capital owned by these tenants averaged \$5,369 and their net worth (property less debts) was \$4,602.

It is striking that a much higher cash income was earned by the tenants who were out of debt than by those in debt. The average net cash income of the tenants (tenant's share only) out of debt was \$1,723 compared with an average of \$1,172 for all tenants. This group of tenants without debts probably includes some very able operators who have paid out of earnings for the rather moderate amount of capital required. This tendency for tenants out of debt to have superior earnings was true in all sections of the state. It was also true for the part-owners who are omitted from the analysis because of lack of space.

The tenants most heavily in debt had higher net cash incomes than those more lightly in debt. This probably represents greater pressure and necessity of earlier sale of grain. The average earnings of the tenants with debts after interest is paid are below the assumed cash living expenses. In this group there are some with higher incomes who will rise rapidly to the "no debt" group.

It may be of interest to compare the most heavily indebted owners and tenants. After interest was paid, the owners had \$303 larger incomes than the tenants, which represented about three percent on their \$10,000 larger net worth. The tenants out of debt actually had as large earnings as the owners out of debt, in spite of the fact that they had \$21,000 less property. This clearly reflects better management. The value of productive livestock, feed and grain was largest for tenant farms with debt ratios of 1-25 percent and decreased as debts increased. Even so, the group with debts from 25-49.9 percent of property had debts equal to the value of their productive livestock.

Conclusions. There was but little relationship between income and debts of owners, but the tenants with the higher incomes had little or no debt.

In 1935 the owners with debts in excess of 50 percent of their property had very little debt-paying capacity after paying interest and allowing \$1,000 for cash living expenses, while the earnings above interest of tenants with debts did not provide this amount of cash living expenses.

The difference between net cash incomes of all owners and all tenants after interest was allowed for was \$372 which represented about two percent on the \$18,149 difference in net worth.

Only better than average operators, or those who had considerable accumulated capital could have made much reduction in debts in 1935.

L. J. NORTON and C. R. SAYRE

Premiums for High-Quality Cream and Butter. Although Illinois farmers produce about 60,000,000 pounds of butterfat annually, until recently no premiums have been paid regularly for high-quality cream. Consequently, the quality of butter made in this state has not improved in recent years to the same extent as in areas where premiums have been paid. The Land O' Lakes Creameries, with 427 member creameries located in Minnesota and surrounding states, began to pay producers a premium of 3 cents per pound of butterfat for high-quality cream in the early twenties. In 1925, about two-fifths of the total production of these creameries was 93 score butter. Thru continued use of premiums, this proportion of high-quality butter had increased to 74 percent by 1935. During the same period the production of butter scoring 90 or under decreased from 19 percent to 4 percent of the total.

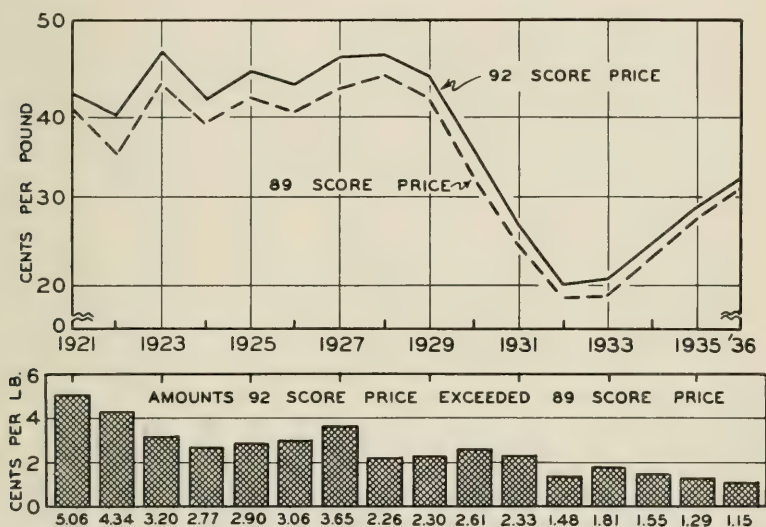


FIG. 1.—YEARLY AVERAGE PRICES OF 92 SCORE AND 89 SCORE CREAMERY BUTTER AND DIFFERENCES BETWEEN THESE PRICES AT CHICAGO, 1921-1936

More recently Oregon and California have established a system of consumer's grades under state inspection. Under this system the consumer has definite knowledge of the quality of butter he purchases. California requires each carton of butter to be labelled as to grade. "First quality" butter is 92 score; "second quality," 90 and 91 score; "third quality," 88 and 89 score; while "fourth quality" is butter below 88 score, and is used for cooking purposes only. Until recently the use of consumer grades in Oregon was voluntary, but is now required under a recent state law.

Premiums paid by the Land O' Lakes Creameries from 1921-1927 were made possible by higher market prices for high-quality butter, together with premiums obtained thru special market outlets. From 1921-1927 the price for 92 score butter on the Chicago market averaged 3.6 cents per pound higher than for 89 score (Figure 1). In later years, however, the spread between prices of 92 and 89 score butter has decreased. During the years 1928-1931 the price spread averaged 2.4 cents per pound; and during 1932-1936, 1.4 cents. This decrease in price spread from 1927 to 1936 may be attributed to an increased volume of high-quality butter being marketed without a corresponding increase in demand. The increasing proportion of high-quality butter resulted from im-

TABLE 6.—ESTIMATED DAILY PER CAPITA CONSUMPTION OF WHOLE MILK IN 14 CITIES IN THE UNITED STATES HAVING POPULATIONS OF MORE THAN 500,000, MAY, 1934¹

City	Pints per capita	City	Pints per capita
Boston.....	.77	Pittsburgh.....	.57
Minneapolis.....	.72	Chicago.....	.54
New York.....	.70	Detroit.....	.53
Los Angeles.....	.65	San Francisco.....	.53
Milwaukee.....	.64	Buffalo.....	.48
Cleveland.....	.64	Baltimore.....	.43
Philadelphia.....	.60	St. Louis.....	.42

¹Illinois Experiment Station Bulletin 412, 1934, p. 161, Table 18.

proved methods of processing, better care of cream at the farm, and more frequent deliveries made possible by use of trucks on improved roads.

On the Chicago market the spread between the price of 92 and 89 score butter *decreased* from 1.29 cents per pound in 1935 to 1.15 cents in 1936, while on the San Francisco market the price spread *increased* from 2.29 cents in 1935 to 2.60 cents in 1936. The price of 92 score butter in San Francisco in 1936 averaged 1½ cents per pound higher than in Chicago, or about the same amount that the price spread in San Francisco exceeded that in Chicago.

A. J. BROWN

Distribution of Milk Through Stores and Depots. Store or depot sales of milk at lower than delivered prices tend to increase per capita consumption, dairymen's incomes, and the proportion which farmers receive of the consumer's milk dollar. Low store prices encourage people to buy more milk, and increased sales of market milk, in turn, return more money to farmers since market milk brings a higher price than manufactured milk. Distribution costs for store or depot sales are lower than those on retail routes; hence, the farm price for these sales constitutes a larger part of what consumers pay for the products.

Store sales of milk in New York and Boston have been an important part of total sales for a longer period than in other large cities. In 1934, Boston, Minneapolis, and New York had the highest estimated per capita consumption of milk of the 14 largest cities in the United States (Table 6). High per capita consumption in Boston and New York can be attributed principally to low store prices, and in Minneapolis to low wagon prices.

The estimated per capita consumption of milk in New York City from 1910 to 1914 averaged .54 pint daily (Table 7), or the same amount consumed in Chicago 20 years later (Table 6). The greatest increase in per capita sales occurred from 1920 to 1924, when they averaged about .71 pint daily, or 12 percent more than in the previous five-year period; sales from 1925 to 1932 averaged .78 pint daily, or about 10 percent more than the period, 1920-1924.

In 1927, about one-third of the total sales of milk in New York were store sales for household uses, while in more recent years, this proportion has increased.¹ In June, 1933, the ordinance prohibiting the sale of dipped milk became effective. This, combined with lower consumer incomes, and other causes, resulted in a reduction in per capita sales to .70 pint daily in 1934 (Table 6). By 1936, per capita sales had increased to .73 pint daily.

The Sheffield Farm Company, the second largest milk distributor in New York City, has been selling milk through stores for more than 20 years. In 1936, this Company had 123 stores listed in the New York City Telephone Directory and an estimated total number of about 200 stores in the New York metropolitan area. Prior to June, 1933, most milk sold through stores in this market was

¹Illinois Agricultural Experiment Station Bulletin 397, 1934, p. 445.

TABLE 7.—CHANGES IN THE ESTIMATED DAILY PER CAPITA CONSUMPTION OF MILK IN THE NEW YORK METROPOLITAN AREA, 1910-1932¹

Year	Daily consumption per person		Year	Daily consumption per person	
	Pint	Percent (1910-14 = 100)		Pint	Percent (1910-14 = 100)
1910-14.....	.54	100	1925-29.....	.78	144
1915-19.....	.59	109	1930-32.....	.78	144
1920-24.....	.71	131			

¹Spencer, Leland, "Economic Aspects of Milk Control," American Creamery and Poultry Produce Review, March 29, 1933, p. 764, Table 1.

dipped milk which sold at prices of from four to six cents a quart lower than bottle milk on retail routes. From 1925 to 1931, the price for Grade B dipped milk at stores averaged 4.7 cents a quart less than Grade B milk on retail routes.¹ Over three-fourths of the milk sold in New York City is classified as Grade B. During the past winter, the price of Grade B milk on retail routes delivered in glass bottles has been 13 cents a quart, as compared with a store price of 10 cents in many parts of the city for milk in paper bottles. In some areas, where competition was less keen, store prices have been 11 or 12 cents a quart.

During the past two years, there has been a surprising increase in the sale of milk in paper bottles to stores and schools. The City Department of Health reports that approximately 2,400,000 individual packages containing quarts or smaller quantities of milk and cream are now used daily in New York City, about 500,000 of which are single-service containers.

A question frequently raised is whether the use of paper bottles lowers the quality of milk. Studies by Tracy and Prucha² have shown that practically no increase in the bacterial content of milk results from the use of paper bottles produced by the machine used in their experiment. Results from this study are being summarized for publication.

In Boston from 1921 to 1932, store sales of milk constituted an increasingly large proportion of total sales. This increase resulted from the policy originally initiated by the First National Stores, of selling store milk at prices lower than on retail routes. In 1921 store sales in the Boston Metropolitan area were negligible. By the early part of 1932, they had increased to 38 percent of the total milk sales of this market.³ From 1922 to 1925, the differential between the store and retail delivered price averaged about 3 cents a quart, as compared with 2 1/3 cents from 1926 to 1933. Since 1933, the usual differential has been 1 or 2 cents a quart.

In many other markets store sales of milk have become an increasingly important part of total milk sales during the past few years. In San Francisco, store sales increased from 15 percent of the total in 1929 to 46 percent in 1935. During this same period store sales in Los Angeles increased from 20 to 40 percent of total sales. In Chicago, substantial increases occurred from 1932 to 1936.

Other studies show indirectly that low prices for milk tend to increase consumption. Thus, a study in 1935 showed that consumers buy more canned milk when market milk prices are high, while consumption of canned milk decreases when market milk is relatively cheap.⁴ A recent study of 1,026 families in specific Wisconsin cities has shown that with an increase in family income per capita consumption of canned milk decreased while market milk consumption

¹"Is Loose Milk a Health Hazard?", Report of Milk Commission, Health Department, New York City, 31, p. 113, Table 39.

²Dairy Husbandry Department, University of Illinois.

³Illinois Agricultural Experiment Station Bulletin 397, p. 495.

⁴Illinois Farm Economics, July, 1935, pp. 7-8.

TABLE 8.—COSTS FOR DISTRIBUTING MILK THROUGH MILK DEPOTS, DANVILLE, ILLINOIS, JANUARY, 1937¹

	Unit cost per quart bottle	Percent
I. Cost for delivery from plant to depots:	<i>cents</i>	
Labor.....	.135	45.0
Truck operating expense, including depreciation.....	.159	53.0
Interest.....	.006	2.0
Total.....	.300	100.0
II. Bottle cost.....	.120	100.0
III. Depot costs:		
Labor.....	1.367	61.5
Advertising.....	.173	7.8
Rent.....	.097	4.3
Depreciation.....	.036	1.6
Fire and riot insurance.....	.011	.5
Repairs.....	.015	.7
Interest.....	.022	1.0
Supplies.....	.123	5.5
Heat, light, and water.....	.028	1.3
Refrigeration.....	.036	1.6
Telephone and telegraph.....	.040	1.8
General administration expenses.....	.106	4.8
Sales tax.....	.168	7.6
Total depot costs.....	2.222	100.0
Total cost of distribution.....	2.642	.....

¹Data obtained through the courtesy of the Producers Dairy, Danville, Illinois.

increased.¹ A study of 8,136 families in St. Louis, in 1934, showed that market milk consumption increased with an increase in family income.² Since canned milk consumption decreases with a decrease in market milk prices, and since market milk consumption increases as family incomes increase, it is reasonable to assume that lower retail prices result in increased consumption of market milk.

The lower store prices in New York and Boston are not the result of lower prices paid to farmers. Farmers selling milk to the Sheffield Farms Company in New York and to the Bellows Falls Cooperative Creamery, which supplies milk to the First National Stores in Boston, have received higher average prices for milk than those paid by other groups in the same dairy districts. From 1921 to 1934, the country plant price for 3.5 percent milk paid producers by the Sheffield Farms Company averaged \$2.43 per 100 pounds, as compared with \$2.17 paid to members of the Dairymen's League.³ As a result of higher average prices to producers and increased market outlets, the Bellows Falls Cooperative increased the number of its patrons from 350 in 1921 to over 1,400 in 1934. It is evident, therefore, that lower store prices both in New York and Boston resulted from lower costs of distribution rather than from paying lower prices to producers.

Store and Depot Distribution Costs. The volume of sales of the Producers Dairy, a cooperative association in Danville, Illinois, has increased steadily since March, 1934, when it first began to sell milk through depots. At the present time, most of the milk products of this Dairy are distributed through its 15 depots or stations and through its wholesale outlets to stores, while a small volume is sold on retail delivery routes. The price of store milk in Danville is 2 to 4 cents a quart lower than on retail routes, the difference depending upon the quantity

¹Mortensen, W. B., University of Wisconsin, *Competitive Market Forces and Their Effects Upon Fluid Milk Consumption*, Journal of Farm Economics, May, 1937, pp. 505.

²Illinois Experiment Station Bulletin 412, pp. 101, Table 3.

³Cornell University Farm Economics, June, 1934, No. 86, p. 2090, and Fluid Milk Report, U. S. Department of Agriculture, Monthly issues, 1934. One of the underlying causes for this price difference was the fact that the Dairymen's League handled a higher proportion of surplus milk than that handled by the Sheffield Farms Company.

TABLE 9.—STORE AND DEPOT DISTRIBUTION COSTS, BOSTON AND DANVILLE¹

Item	Unit cost per quart bottle	
	Danville ²	Boston ³
	<i>cents</i>	<i>cents</i>
Bottles.....	.12	.12
Delivery from plant to store or depots.....	.30	2.10 ⁴
Store or depot costs.....	2.22	1.35
Total.....	2.64	3.57

¹Since plant costs are the same whether milk is sold through stores and depots or on retail routes, they were not included in this comparison. ²See Table 3. ³Data obtained from Summary Report on Cost of Distributing Milk in the Boston Market, Prepared for the Massachusetts Milk Control Board, October, 1936. Table 10-a, p. 21, and Table 12-a, p. 22. ⁴Includes three-fourths of the interest cost of .08 cent per quart bottle as shown in Table 10-a, p. 21.

TABLE 10.—RECEIPTS FROM SALE OF PRINCIPAL FARM PRODUCTS AND GOVERNMENT PAYMENTS, JANUARY-APRIL, ILLINOIS (THOUSAND DOLLARS)¹

Illinois	1934	1935	1936	1937
Crops.....	\$12,969	\$15,242	\$30,996	\$39,688
Livestock and livestock products.....	61,782	90,342	94,955	105,666
Government payments.....	1,082	17,539	3,471	12,708
	\$ 75,833	\$123,123	\$129,422	\$158,062

RECEIPTS FROM SALES OF PRINCIPAL FARM PRODUCTS AND GOVERNMENT PAYMENTS, JANUARY-APRIL, UNITED STATES (MILLION DOLLARS)

United States	1934	1935	1936	1937
Crops.....	\$ 732	\$ 657	\$ 700	\$ 949
Livestock and livestock products.....	865	1,117	1,297	1,373
Government payments.....	104	221	54	283
	\$ 1,701	\$ 1,995	\$ 2,051	\$ 2,605

¹Data from Bureau of Agricultural Economics, U. S. D. A.

purchased. All milk sold by the Producers Dairy is subject to the supervision of the Illinois State Board of Health.

In January, 1937, costs for distributing milk through depots in Danville after the milk was processed and bottled, averaged 2.64 cents per quart bottle (Table 8). Over three-fifths of the depot costs consist of salaries and commissions paid depot operators. The standard rate of commissions is one-seventh of the total sales value for all products other than butter and eggs, for which he receives 2 cents a pound or carton. A 1-cent deposit is charged consumers for each bottle. Itemized costs, including labor, are shown in Table 8.

Distribution costs, including bottles, delivery from plant to stores, and store costs, for Boston averaged 3.57 cents per quart bottle, or about one cent a quart higher than in Danville (Table 9). Delivery costs to stores were much higher in Boston than in Danville, because of the extra cost incurred in maintaining branch loading stations. In Danville, all depots are located within a radius of six miles of the central plant and can be serviced directly.

R. W. BARTLETT

Cash Farm Incomes Increasing. Current cash incomes of Illinois farmers or the first four months of 1937 were more than double those in 1934 (Table 10). Between these years sales of crops and livestock and livestock products have increased annually in value during the January-April period. The increase from

1936 was most marked in crop sales because of the marked price advance. Government payments were much larger during these months in 1937 than in 1936, but only about three-fourths as large as in 1935.

Corresponding figures for the United States show much the same trend although the extent of the increase since 1934 has been relatively less than in Illinois. The gains shown for 1937 were not evenly distributed in the various parts of the country, the greatest gains from current sales being in the South Central States and the least in the West North Central States where the effects of the 1936 drouth were severe.

TABLE A.—INDEXES OF BUSINESS CONDITIONS, SAME MONTH 1921-1929 = 100

	Whole-sale prices of all commodities (U. S.) ¹	Farm prices		Cash income to Illinois farmers		Prices paid by farmers for commodities bought (U. S.) ¹	Purchasing power of income to Illinois farmers	Factory payrolls in the United States ⁴	Cost of living in the United States ⁵	Purchasing power of factory payrolls
		Illinois ²	United States ³	Millions ¹	Indexes ³					
1929.....	97	109	103	\$548.6	108	100	108	112	99	113
1930.....	88	95	89	459.7	91	96	95	91	96	95
1931.....	74	65	61	309.5	61	82	74	69	86	80
1932.....	66	44	46	228.7	45	71	63	48	77	62
1933.....	67	47	49	276.7	55	70	79	51	74	69
1934.....	76	64	64	312.7	62	80	77	64	78	82
1935.....	82	88	76	378.1	75	82	91	73	82	89
1936.....	82	91	80	453.1	90	81	111	85	84	101
April, 1936...	81	84	75	34.2	76	79	96	81	83	98
Jan., 1937....	86	106	91	41.5	91	84	108	97	85	114
Feb., 1937....	87	108	90	34.5	92	84	110	98	86	114
Mar., 1937....	89	107	91	40.1	94	86	109	102	87	117
Apr., 1937....	90	114	93	41.9	95	87	109	107	88	122
May, 1937....	..	112	92	....	..	87	..	..	..	..

TABLE B.—PRICES AND PRICE INDEXES OF ILLINOIS FARM PRODUCTS

Product	Prices					Indexes: same month 1921-1929 = 100		
	May average		May 1936	April 1937	May 1937	May 1936	April 1937	May 1937
	1910-14	1921-29						
Corn, bu.....	\$.59	\$.74	\$.57	\$ 1.26	\$ 1.24	77	180	168
Oats, bu.....	.39	.42	.23	.52	.50	55	124	119
Wheat, bu.....	.94	1.29	.88	1.33	1.20	68	106	93
Barley, bu.....	.65	.67	.50	1.00	1.01	75	152	151
Hogs, cwt.....	7.42	9.30	9.00	9.50	9.90	97	101	106
Beef cattle, cwt..	6.02	7.90	7.10	8.30	8.70	90	108	110
Lambs, cwt.....	6.28	11.83	9.30	10.10	10.30	79	87	87
Milk cows, head	54.00	72.00	55.00	60.00	60.00	76	84	83
Veal calves, cwt..	6.86	9.79	8.10	8.70	8.70	83	88	89
Sheep, cwt.....	4.72	6.38	4.10	4.70	4.40	64	70	69
Horses, head....	153.00	89.00	117.00	111.00	111.00	132	125	125
Butterfat, lb.....	...	.37	.25	.31	.29	67	76	78
Milk, cwt.....	1.15	2.06	1.45	1.95	1.85	70	78	90
Eggs, doz.....	.16	.22	.18	.20	.17	79	91	76
Chickens, lb.....	.12	.22	.17	.15	.14	78	70	66
Wool, lb.....	.19	.32	.27	.35	.35	84	110	109
Apples, bu.....	1.30	2.01	1.00	1.85	1.80	50	89	90
Hay, ton.....	14.31	14.37	8.00	16.20	16.00	56	114	111
Potatoes, bu.....	.82	1.34	.95	1.50	1.45	71	111	108
Illinois index of farm prices.....	...	...	...	...	...	80	114	112

¹(Original data for Tables A and B were obtained from the following sources: (1) Bureau of Agricultural Economics, U.S.D.A. Beginning with January, 1936, cash income to Illinois farmers includes the revised estimates of the Bureau; (2) Illinois Crop Reporting Service, Illinois State Department of Agriculture, and U. S. Department of Agriculture, cooperating; (3) Monthly data include an average of current month with eleven preceding months; (4) Federal Reserve Board; (5) National Industrial Conference Board. For explanations of computations, see Number 2, July, 1935.

ILLINOIS FARM ECONOMICS

Department of Agricultural Economics, College of Agriculture and Agricultural Experiment Station, in cooperation with the Extension Service in Agriculture and Home Economics, University of Illinois

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Numbers 26 and 27

CURRENT ECONOMIC DISCUSSIONS ON THE AIR

The following special Agricultural Economics broadcasts are a part of the programs in Agriculture and Home Economics which are broadcast regularly by the College of Agriculture. The Agricultural Programs are daily except Saturday at 12:30 to 1:00 P.M. The Home Economics programs are Monday, Wednesday, and Friday, 10:02-10:15 A.M., Station W I L L, 580 Kilocycles.

Friday, August 27—"Feed and Feeder Prospects"—P. E. JOHNSTON.

Friday, September 3—"Farm Sports Festival"—D. E. LINDSTROM.

Friday, September 10—"Facts About the Wheat Situation"—L. J. NORTON, R. H. WILCOX, J. C. HACKLEMAN and BENJAMIN KOEHLER.

Friday, September 17—"The Current Economic Situation As It Affects the Farmer"—E. J. WORKING and G. L. JORDAN.

Friday, September 24—"Developments in the Feed and Feeder Situation"—P. E. JOHNSTON and L. H. SIMERL.

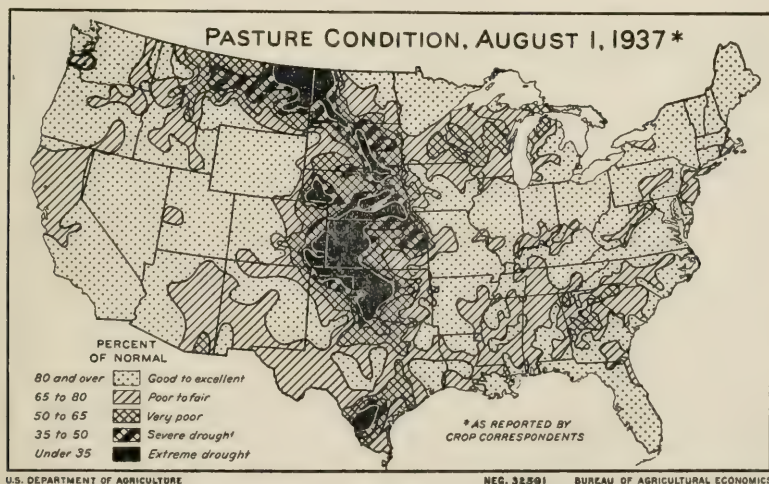


FIG. 1.—PASTURE CONDITIONS HAVE BEEN GENERALLY GOOD THIS YEAR EXCEPT FOR A STRIP FROM NORTH TO SOUTH IN THE GREAT PLAINS AREA

The outlook information in this issue is based upon reports issued by the Bureau of Agricultural Economics, U.S.D.A.—R. C. Ross, *Editor*.

Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. MUMFORD, *Director*, Extension Service in Agriculture and Home Economics, University of Illinois

General Business Conditions. Business conditions are undergoing the usual midsummer breathing spell after a spring of great activity, and in prospect of an active fall period. Profits for the first six months of 1937 for 315 industrial corporations representing many different lines of manufacturing and merchandising were 36 percent ahead of the same period in 1936, according to data published by the National City Bank of New York. Industries showing the greatest gains were iron and steel, paper products, heating and plumbing, railway equipment, and building materials. These represent largely the heavy industries, making goods used in further production. Such lines suffered the greatest declines during the depression, and have been slow in their recovery. Among the lines showing least gains or incurring losses were miscellaneous food products, baking and miscellaneous services—lines which held up reasonably well during the depression and recovered rather quickly. In some other lines, like automobiles, lower returns were shown, due largely to the very high levels established a year ago, and to some extent to labor difficulties.

Total exports (agricultural and non-agricultural) for the first six months of 1937 were 33 percent above last year, and amounted to 1.54 billion dollars. Imports increased even more rapidly, 44.6 percent, and totaled 1.68 billions.

The first six months were beset with labor troubles, political uncertainty, and rising costs. Of these difficulties, the first two have moderated, but rising costs due to wage increases and increasing cost of materials, are still in the picture, retarding building construction and forecasting further price advances which will partially nullify the wage gains.

Activity in steel and textile industries continues high, and buying of farm machinery is active; and automobile production is slowing down in preparation for the new models. Prices of farm crops are declining in the face of a high and widely distributed production of crops harvested and prospects of big crops of corn and cotton. Prices of livestock and livestock products are generally strong with supplies limited.

Agricultural Conditions. The situation in agriculture has been variously described from "favorable" to "brilliant". Progress has been made as is indicated by receipts from sales of principal farm products during the first six months of \$3,503,000,000. This is 12 percent above the same period in 1936, 28 percent above 1935, and 44 percent above 1934. Thus far, the gains have been unevenly distributed because of drouth, unbalanced prices, etc. While the larger production of crops this year will lead to price adjustments, there should result a better balance between prices of livestock and livestock products and feeds, and between agriculture and other industries which will aid in the exchange of products among these groups.

Crop Production. The indicated crop production for 1937 can be interpreted best by comparison with the five-year period, 1928-1932 (Table 1). Of the crops listed, only spring wheat, oats and barley appear likely to fall below the period average for the United States. For Illinois, the same crops are shorter as are also potatoes.

Estimated production is not yet available for soybeans and cowpeas, but the condition report for August 1 indicates better than average prospects for both crops both for the United States and for Illinois.

In comparison with the short crops of recent years, the indicated production for this year shows a marked increase. The question is being raised whether the production is excessive, and likely to bring disastrous prices. As compared with most years the carryover of crops from last year is exceptionally short, the domestic demand is much stronger, and there is need to have a more ample carry-over held in reserve a year hence. From these standpoints a large production was needed; if similar production is continued it may lead to difficulties.

Nearly all parts of the country are sharing in the larger production. The effect of weather conditions may be measured by pasture conditions on August 1 (Fig. 1). Except for a drouth area extending from Montana and North Dakota to Texas, pasture conditions are generally good—better than in six of the past seven years.

Corn. For the United States the indicated corn production is four percent above the 1928-1932 average, and 74 percent above 1936. For Illinois, prospects are for 15 percent above the five-year average and 78 percent above 1936.

The condition of the corn crop is similar to the map showing pasture condition (Fig. 1). In North Dakota, South Dakota, Nebraska, Kansas, Missouri,

TABLE 1.—AVERAGE PRODUCTION OF SELECTED CROPS 1928-1932 AND INDICATED PRODUCTION FOR 1937, UNITED STATES AND ILLINOIS¹

	Total Production (in thousands)			
	United States		Illinois	
	1928-32	1937	1928-32	1937
Corn, bu.	2,554,772	2,658,748	336,738	387,491
Wheat, all, bu.	864,532	890,419	33,183	45,065
winter, bu.	623,220	688,145	30,674	44,557
spring, bu.	241,312	202,274	2,509	508
Oats, bu.	1,215,102	1,130,628	152,009	148,260
Barley, bu.	281,237	227,398	11,707	3,312
Grain sorghums, bu.	97,760	102,643	.....	.....
Hay, all tame, ton.	70,146	74,904	3,110	3,302
Apples, bu.	164,355	202,274	4,581	8,960
Peaches, bu.	57,298	59,018	1,708	2,088
Pears, bu.	24,334	30,388	475	944
Potatoes, bu.	372,115	402,537	4,511	3,870
Sweet potatoes, bu.	66,368	73,989	535	600

¹From United States Department of Agriculture, August Crop Report.

Oklahoma and Texas, prospects are for a lower production than the five year average, 1928-1932, although much above the 1936 production which was exceptionally low in this general area. Farther east, however, prospects for corn production are generally very good. The estimated production of 2.66 billion bushels exceeds yearly production since 1932, and has been equalled only twice since 1925. It should provide ample feed to permit expansion of livestock production, which has been limited by feed shortage.

Wheat. The indicated wheat crop of 890 million bushels will provide an exportable surplus of about 183 million bushels. This is likely to give the United States the position of the largest exporter of wheat in 1937-1938. Because of lower production in most other countries, and a much reduced carryover of old wheat in all parts of the world, the world price is expected to be well maintained. With the larger crop and prospective prices, the 1937 crop is expected to be the most valuable since about 1927.

Yields of winter wheat were affected by rust in many areas, resulting in wide variations in the same community. Quite generally, average yields by states were close to the 5 year figures, but acreages were larger. In Kansas, Nebraska, Montana, Washington, Oregon and Colorado, production was somewhat below average.

Spring wheat production has been reduced by drouth, heat, grasshoppers, and rust. The extent of the damage has been spotted, however, and production is expected to be about 84 percent of the 5 year average, but nearly double the 1936 crop.

Oats. Production of oats is indicated as 7 percent below the 5 year average, but 43 percent larger than the 1936 crop. Fewer oats are needed now than before the heavy reductions in numbers of horses, hence the crop will be ample for current use and for providing a normal carryover.

Fruits. The combined tonnage of apples, peaches, pears, cherries, plums, prunes, and apricots for 1937 is expected to be 16 percent above the 5 year average. For Illinois apple prospects are 90 percent above the 5 year average, 1928-1932; peaches, 22 percent above; pears, 20 percent above; and grapes, 41 percent above. This points to large supplies available with relatively little transportation, and should be helpful both to producers and consumers.

Beef Cattle. Cattle on feed on August 1 in the Corn Belt states were reported by the United States Department of Agriculture as 29 percent below last year, and the smallest in many years. The western Corn Belt States had small numbers on feed a year ago because of feed shortage, and have fewer still this year. In the eastern part large numbers were on feed last year, and the reduction this year is not so marked. The numbers on feed, by states, are estimated at the following percentages of 1936: Ohio, 75; Indiana, 90; Illinois, 70; Michigan, 85; Iowa, 65; Missouri, 75; South Dakota, 60; Minnesota, 115; Wisconsin, 95; Nebraska, 55; Kansas, 60; Corn Belt (weighted), 71.5.

Marketings of finished cattle will be short during the remainder of the year. Good prices for finished cattle and the good crop prospects point to a strong demand for stocker and feeder cattle. This in turn will lend support to prices of lower grades of slaughter cattle. If the number of cattle put on feed this fall is materially increased, there is a prospect of a sharp decline in prices of the better grades of slaughter cattle next winter and spring.

Hogs. Numbers of hogs have not yet recovered from the drastic liquidation which accompanied the 1934 drouth. While the 1936 pig crop was considerably larger than that of 1935, the drouth of 1936 and high feed costs have caused a decline in 1937, the spring pig crop being 7.3 percent below that of 1936. Sows to farrow this fall are indicated to be 3.4 percent below the 1936 number, altho the corn crop prospects may increase the number of fall pigs.

The 1936 pig crop was marketed early and at light weights because of unfavorable feed prices. Despite the high prices of hogs, corn prices have made feeding unprofitable. With the prospect of a favorable ratio this fall, it is anticipated that marketings will occur late and at heavier weights, making up in part for the reduction in numbers.

Domestic demand for pork has continued strong and a stable demand for the remainder of the year appears likely. Exports have continued at a low figure, and imports have exceeded exports during four months in the past year, altho total imports of pork and lard amount to only about 1½ percent of inspected slaughter.

Storage stocks of pork and lard, which were very large last spring have been somewhat reduced.

The Corn Belt states produced 10 percent fewer spring pigs than in 1936 and will have 4 percent fewer fall pigs. Illinois produced 2 percent fewer spring pigs, but will have 9 percent fewer fall pigs.

Dairy Products. Milk production has entered its normal seasonal decline following the June peak but is somewhat higher than a year ago. This reflects the favorable pasture situation, altho high feed prices have limited the feeding of grain. Crop prospects point to a more favorable relationship between prices of feeds and dairy products. Consumer demand has been strong as indicated by prices for fluid milk, butter and other manufactured products above last year,

even with greater production. Factory ice cream, which is somewhat of a luxury product has recovered about five-sixths of the loss in production suffered in the depression. Storage stocks of butter are 20 percent higher than a year ago.

Sheep and Lambs. The early spring lamb crop was somewhat smaller than last year, and was delayed by unfavorable weather and feed conditions. With favorable pasture conditions since June this year, marketings have been heavier both from the range and the Corn Belt. The good crop prospects may cause a demand for feeder lambs in the Corn Belt, this demand coming into direct competition with slaughter demands, since lambs are likely to be heavier than usual.

Wool production in the United States is about the average for the five years, 1931-1935, and 2 percent above 1936 production. In this country, the mill consumption of wool has been large thus far in 1937 and stocks relatively low, with imports larger than in any similar period since 1926. During the remainder of the year, consumption and imports are expected to be smaller, but supplies are below average, and prices for a few months are likely to remain steady.

Poultry and Eggs. Thus far in 1937 the feed-egg ratio has been unfavorable to producers, altho it has improved steadily since early June. As a result, hatchings in 1937 have been reduced to 15 percent below those of 1936, summer marketing of young chickens has been larger than usual, and numbers of young chickens on July 1 were 19 percent less than in 1936 and the lowest in the 13 years for which data are available.

Despite the larger than usual storage stocks, prices of chickens may be expected to have less than the usual seasonal decline to December, and an advance is possible. Prices of eggs, however, may be expected to advance until the end of the year despite storage stocks (in cases and frozen) 24 percent greater than last year.

The reduction in this year's hatching will become evident in the early part of 1938 with smaller flocks and egg production. At that time the price of eggs is expected to be more favorable than in 1937 and feed prices lower. Saving bullets for 1938 egg production would appear wise even tho price relationships of feeds and eggs during the remainder of 1937 may remain unfavorable.

FARM LAND RENTED IN ILLINOIS TOWNSHIPS

Over half the farm land is rented by tenants and part owners in 1,187 of the 1,634 townships reporting farms in Illinois, according to Census Bureau information recently made accessible to Agricultural Experiment Station workers.

A glance at a map of Illinois showing the proportion of farm land rented by tenants and by part owners (farmers renting some of their land from others) reveals wide differences between districts in the state, particularly between east central and central Illinois, where the proportion is high, and the southern, northwestern and to a less degree the northwestern parts where it is lower (Fig. 2).

The differences in proportion of farm land rented are especially interesting in the light of differences in types of farming, yearly farm income, land values, and kindred factors.

Very high percentages of farm land are rented in the cash-grain farming type areas (4a and 4b). In these areas are 25 counties, 24 of which have more than 70 percent of their farm land rented. In 11 of these counties over 70 percent of the farm land is rented, these being Logan, 78.4 percent; Ford, 76.3; McLean, 74.4; Piatt, 74.3; Livingston and Grundy, 73.4; Champaign, 72.4; Macon, 71.9; St. Louis, 71.6; Mason, 70.9; and Marshall, 70.2. In seven counties there was no township in which less than 60 percent of the farm land was rented, and in Piatt county the proportion in each township was 70 percent or more.

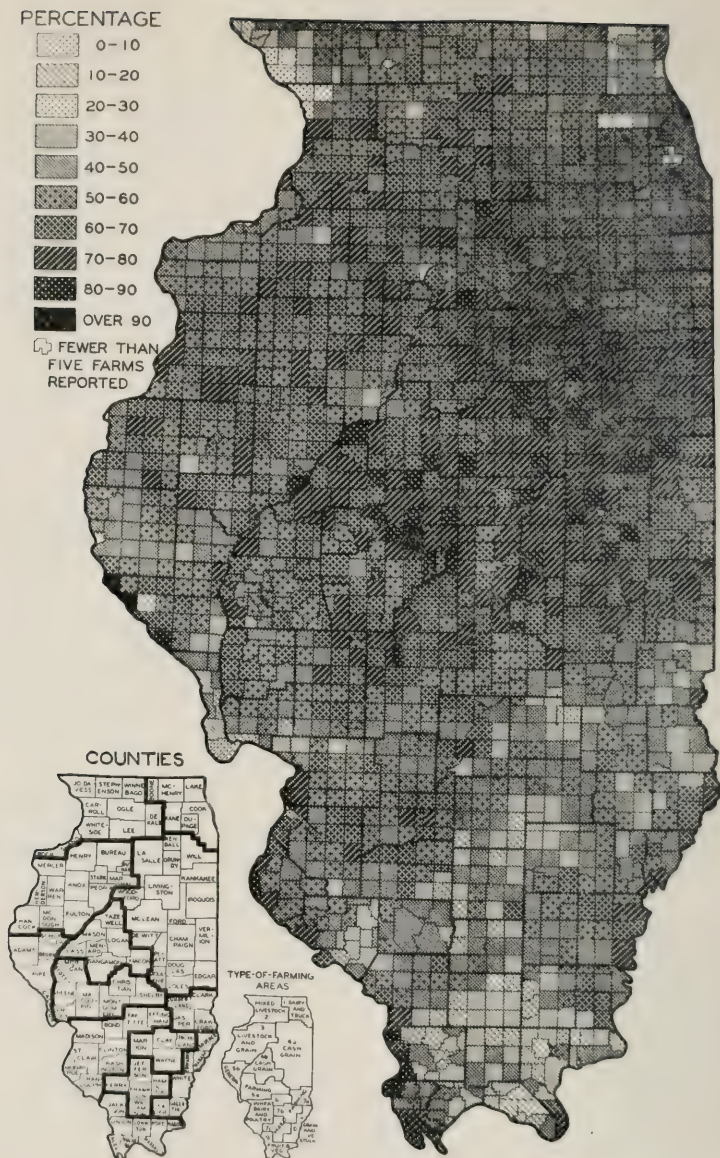


FIG. 2.—PERCENTAGE OF FARM LAND RENTED IN ILLINOIS TOWNSHIPS, 1935
(Based on data from United States Bureau of Census)

In cash-grain areas, conditions are favorable to farm operation in fairly large units and, because of the large amount of capital required, are favorable to operation by tenants and part owners.

In the average Illinois township in 1935, there were 142 farms containing 19,376 acres of farm land valued at \$1,350,000. Of these farms 63 were tenant farms and 24 were operated by part owners. These tenant farms contained 9,522 acres valued at \$686,000. Part-owner farms contained 4,082 acres valued at \$245,879, and of the part-owner land, 46 percent, or about 1,877 acres, in each

TABLE 2.—PERCENTAGE OF FARM ACREAGE RENTED AND DISTRIBUTION OF TOWNSHIP PERCENTAGES OF FARM ACREAGE RENTED, BY FARMING TYPE AREAS, ILLINOIS, 1935

Farming type areas ¹	Acreage rented (percent)	Number of townships ² in which percentage rented was										Total townships
		Over 90	80-90	70-80	60-70	50-60	40-50	30-40	20-30	10-20	Under 10	
1.....	53.4	1	2	4	16	52	14	5	3	..	3	100
2.....	56.7	..	1	23	47	55	30	8	2	1	7	174
3.....	62.3	..	1	42	88	62	24	4	1	2	..	224
4a.....	69.2	1	25	139	117	40	9	..	..	..	1	332
4b.....	69.2	1	12	46	37	13	7	..	..	..	..	116
5a.....	59.3	..	2	16	45	52	23	2	3	..	..	143
5b.....	52.1	2	1	4	14	26	21	6	2	1	..	77
5.....	52.7	2	2	10	25	55	32	20	6	..	..	152
7a.....	46.9	..	..	1	2	12	21	8	..	..	..	44
7b.....	45.5	..	..	..	2	18	22	13	3	..	..	58
7c.....	41.7	..	..	..	2	11	29	9	7	1	..	59
8.....	52.9	..	..	5	12	14	16	8	3	..	..	58
9.....	41.6	..	3	11	5	8	23	24	16	6	1	97
Total.....	58.8	7	49	301	412	418	271	107	46	11	12	1,634
Percentage of townships		0.4	3.0	18.4	25.2	25.6	16.6	6.6	2.8	0.7	0.7	100.0

¹These areas show sufficient specialization to warrant the following designations: (1) dairy and truck; (2) mixed livestock; (3) livestock and grain; (4) cash grain; (5) general farming; (6) wheat, dairy and poultry; (7) mixed farming; (8) grain and livestock; and (9) fruit and vegetables. See H. C. M. Case and K. H. Myers, *Types of Farming in Illinois*. Illinois Bulletin 403.

²Or equivalent minor civil divisions, called precincts in some counties.

township was rented. Adding this to the full tenant land makes about 11,398 acres of the total of 19,376 acres, or 59 percent, rented. There are 16 townships in the average Illinois county.

In seven Illinois townships, over 90 percent of the land was rented, four being largely city townships, two levee district townships and one containing large estates. Levee district and large estate influence is present also in many other townships characterized by high percentages of farm land rented.

At the other end of the scale are 12 townships in which less than 10 percent of the farm area was rented. Five of these townships were in Cook County and one in Rock Island County, where urban influence was prominent, and three each in Carroll and Jo Daviess Counties near the Mississippi River, where urban influence is markedly absent.

In general, bottom land in levee and drainage districts showed high percentages of land rented. In some cases recent passage of title to lenders may be a part of the explanation.

The lowest percentages over extensive areas appear in southern Illinois in farming-type areas 9, fruit and vegetables, and 7, mixed farming. Income per farm has been lower in these two areas than in other farming-type areas of Illinois. The same is true for values of land and buildings per farm and per acre.

Disregarding areas in which differences in color or race exist between owner and tenant, the proportion of rented land in farming-type area 4, the cash grain area of Illinois, is probably higher than in any equally large territory in the United States.

C. L. STEWART and JOSEPH ACKERMAN

¹⁻⁵Original data for Tables A and B were obtained from the following sources: (1) Bureau of Agricultural Economics, U.S.D.A. Beginning with January, 1936, cash income to Illinois farmers includes the revised estimates of the Bureau; (2) Illinois Crop Reporting Service, Illinois State Department of Agriculture, and U. S. Department of Agriculture, cooperating; (3) Monthly data include an average of current month with eleven preceding months; (4) Federal Reserve Board; (5) National Industrial Conference Board. For explanations of computations, see Number 2, July, 1935.

TABLE A.—INDEXES OF BUSINESS CONDITIONS, SAME MONTH 1921-1929 = 100

	Whole-sale prices of all com- modities (U. S.) ¹	Farm prices		Cash income to Illinois farmers		Prices paid by farmers for com- modities bought (U. S.) ¹	Pur- chasing power of income to Illinois farmers	Factory payrolls in the United States ⁴	Cost of living in the United States ⁵	Pur- chasing power of factory payrolls
		Illinois ²	United States ³							
				Millions ¹	Indexes ³					
1929.....	97	109	103	\$548.6	108	100	108	112	99	113
1930.....	88	95	89	459.7	91	96	95	91	96	95
1931.....	74	65	61	309.5	61	82	74	69	86	80
1932.....	66	44	46	228.7	45	71	63	48	77	62
1933.....	67	47	49	276.7	55	70	79	51	74	69
1934.....	76	64	64	312.7	62	80	77	64	78	82
1935.....	82	88	76	378.1	75	82	91	73	82	89
1936.....	82	91	80	453.1	90	81	111	85	84	101
June, 1936...	82	82	76	410.1	78	78	100	84	84	100
Feb., 1937...	87	108	90	34.5	92	84	110	98	86	114
Mar., 1937...	89	107	91	40.1	94	86	109	102	87	117
Apr., 1937...	90	114	93	41.9	95	87	109	107	88	122
May, 1937...	90	112	92	37.8	95	87	109	107	88	122
June, 1937...	90	109	89			87		106	88	120

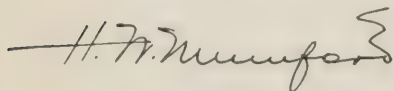
TABLE B.—PRICES AND PRICE INDEXES OF ILLINOIS FARM PRODUCTS

Product	Prices					Indexes: same month 1921-1929 = 100		
	July average		July 1936	June 1937	July 1937	July 1936	June 1937	July 1937
	1910-14	1921-29						
Corn, bu.....	\$.63	\$.81	\$.80	\$ 1.17	\$ 1.20	99	150	148
Oats, bu.....	.38	.39	.32	.43	.38	82	102	97
Wheat, bu.....	.86	1.17	.97	1.07	1.13	83	86	97
Barley, bu.....	.63	.65	.63	.83	.70	97	124	108
Hogs, cwt.....	7.54	9.64	9.80	10.50	11.60	102	116	120
Beef cattle, cwt.	6.04	7.99	7.20	9.00	9.80	90	113	123
Lambs, cwt.....	6.04	11.29	8.90	10.30	9.40	79	87	83
Milk cows, head	53.00	72.00	55.00	63.00	61.00	76	88	85
Veal calves, cwt.	7.00	10.02	7.70	8.60	8.90	77	87	89
Sheep, cwt.....	4.14	5.62	3.40	3.65	3.75	60	65	67
Horses, head...	153.00	88.00	114.00	106.00	103.00	130	120	117
Butterfat, lb.....		.36	.31	.29	.30	86	81	83
Milk, cwt.....	1.29	2.19	1.80	1.70	1.75	82	85	80
Eggs, doz.....	.15	.23	.18	.16	.17	78	75	75
Chickens, lb.....	.12	.22	.17	.15	.16	76	70	71
Wool, lb.....	.19	.33	.30	.33	.32	90	99	96
Apples, bu.....	.77	1.63	1.20	1.55	.75	74	67	46
Hay, ton.....	13.91	13.24	8.60	13.50	11.20	65	97	85
Potatoes, bu.....	1.03	1.62	1.70	1.20	1.05	105	82	65
Illinois index of farm prices.....						90	109	111

¹⁻⁵For sources of data in tables see previous page.

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ILLINOIS FARM ECONOMICS

Department of Agricultural Economics, College of Agriculture and Agricultural Experiment Station, in cooperation with the Extension Service in Agriculture and Home Economics, University of Illinois

Urbana

September and October, 1937

Numbers 28 and 29

CURRENT ECONOMIC DISCUSSIONS ON THE AIR

The following special Agricultural Economics broadcasts are a part of the programs in Agriculture and Home Economics which are broadcast regularly by the College of Agriculture. The Agricultural programs are daily except Saturday at 12:30 to 1:00 P.M. The Home Economics programs are Monday, Wednesday, and Friday, 10:02-10:15 A.M., Station W I L L, 580 Kilocycles.

October 29—Cost of Harvesting the Illinois Corn Crop—R. C. ROSS, M. P. GEHLBACH, and N. O. THOMPSON.

November 5—Moving the 1937 Apple Crop—J. W. LLOYD and VICTOR EKSTROM.

November 12—The Social Security Act and the Farm Family—D. E. LINDSTROM and One Farm Family.

Required Numbers for the Music Festival—L. F. DEMMING.

November 19—The Current Economic Situation as It Affects the Farmer—E. J. WORKING and J. W. GREEN.

November 26—Fitting Livestock Into the Farm Plan—M. L. MOSHER and J. B. CUNNINGHAM.

THE GENERAL SITUATION

Business Conditions. Business activity in the United States increased at a rapid rate up to August, but is now leveling off somewhat with industrial output for September and October at a lower level than in August. Though beset with labor troubles, political uncertainty, and rising costs, industrial production during the first eight months of 1937 was 16 percent higher than for the same period in 1936, with purchasing power of factory payrolls 17 percent higher. In view of substantial wage increases thruout the country, it is significant that the increase in industrial production in 1937 has been practically the same as that in purchasing power of factory payrolls.

The purchasing power of farm income, however, has failed to keep pace with that of factory payrolls, since the former from January to August was only five percent higher than for 1936, while factory payrolls increased 17 percent in purchasing power. Part of the smaller gain for farm income may be attributed to the abnormal increase in farm income in 1936, as compared with payrolls.

The outlook information in this issue is based upon reports issued by the Bureau of Agricultural Economics, U.S.D.A.—R. C. ROSS, *Editor*.

Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. MUMFORD, *Director*, Extension Service in Agriculture and Home Economics, University of Illinois

From January to August, 1937, in Illinois, the purchasing power of farm income was only two percent higher than for the same period in 1936 (Fig. 1), though during 1936 Illinois registered greater gains than the country as a whole.

Illinois Farm Prices. The large production of crops harvested, and prospects of good crops of corn, soybeans, and apples, have resulted in a substantial decline in the general level of Illinois farm prices during the past few months. From a high point of 114 in April, the index of Illinois farm prices declined to 101 in September (Table B).

September farm prices of beef cattle, corn, barley, horses, and hogs (when corrected for changes in seasonal variations) were higher than the general Illinois level. The index of corn prices dropped from a peak of 180 in April (1921-1929 = 100) to 118 in September; subsequent reduction in corn prices have occurred as increasing volumes of new corn have moved to market.

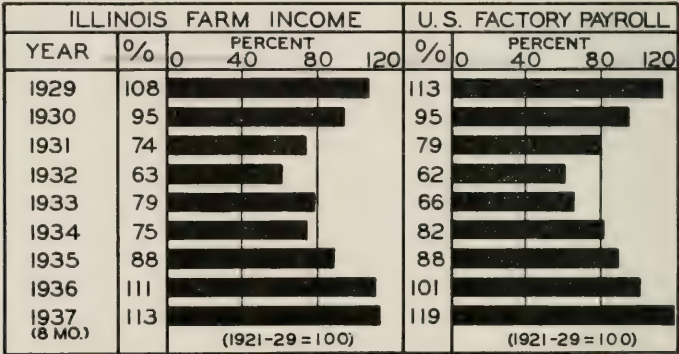


FIG. 1.—PURCHASING POWER OF ILLINOIS FARM INCOME AND FACTORY PAYROLLS IN THE UNITED STATES, 1929-1936

Data obtained from U.S.D.A. and the Federal Reserve Board.

September prices of wool, lambs, veal calves, chickens, milk cows, milk wheat, butterfat, hay, oats, potatoes, sheep, eggs, and apples were lower than the general level of Illinois prices. At 65 cents a bushel, apple prices in September of this year were the lowest of any September since 1931, when growers received an average of 55 cents a bushel.

Changes in Unemployment. Though substantial progress has been made in putting people to work, one of the serious problems still confronting Federal, state, and local governments is unemployment. The peak of unemployment in the United States was reached in April, 1933, when 13,300,000 people were out of work, according to data compiled by the National Industrial Conference Board. By June, 1935, this number had decreased to 9,711,000, a net decrease of 3,589,000. In June, 1937, there were 6,082,000 people out of work, according to the Board's estimate, or slightly less than half the number at the peak of April, 1933. The present level of unemployment is estimated at 6,000,000 or about the same as that of the latter part of 1930. The current governmental survey of unemployment may provide more specific data. At any time unemployment figures include a considerable number of people who are not employable.

Changes in Factory Payrolls. The major upward movement in factory payrolls in the United States, which began in 1933, and which was sharp

accelerated during the first eight months of 1937, has been evident in payrolls in Illinois and in specific Illinois cities, as well as in other large cities in the United States (Fig. 2). Illinois payrolls for the first eight months of 1937 were 33 percent higher than for the same period a year ago, and 2½ times the average for 1932. During the past year, payrolls in Illinois have increased somewhat faster than for the country as a whole.

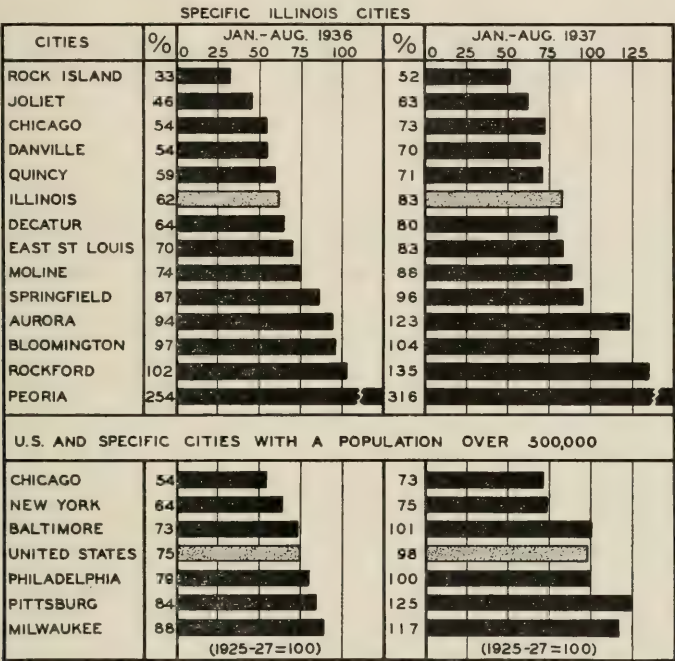


FIG. 2.—FACTORY PAYROLLS IN ILLINOIS, UNITED STATES, AND SPECIFIC CITIES, JANUARY-AUGUST, 1936 AND 1937

Data obtained thru the courtesy of Illinois State Department of Labor, Federal Reserve Board, and Survey of Current Business.

In six cities, Peoria, Rockford, Aurora, Bloomington, Springfield, and Moline, factory payrolls during the past year have increased more rapidly than for the state as a whole. For the past four years, payrolls in Peoria have advanced more rapidly than for any other city in the United States for which data are available.

R. W. BARTLETT

FARM PRODUCTS

Fall Harvested Crops. The fall harvested crops, corn, soybeans, and apples, promise better than average production both in the United States and in Illinois. For the entire country the corn crop is slightly larger than the five-year average, 1928-1933 (Table 1). Of the states which normally produce more than 75 million bushels, Nebraska, Kansas, Missouri, and South Dakota have a crop much under average because of drouth. The central and eastern Corn Belt has a large crop. In Illinois the production as estimated by the United States Department of Agriculture on October 1 is 12.4 percent above the five-year average. Within the state the crop is heaviest in the west central section where drouth was very severe in 1936.

TABLE 1.—PRODUCTION OF SPECIFIED CROPS, AND STOCKS ON OCTOBER 1¹

	United States			Illinois		
	Av. 1928-1932 Thousand bu.	1937 Thousand bu.	Percent change	Av. 1928-1932 Thousand bu.	1937 Thousand bu.	Percent change
Corn.....	2,554,772	2,561,936	+ 00.3	336,738	415,844	+ 23.5
Soybeans.....	11,096 ²	35,539 ²	+220.3	5,869	22,135	+277.1
Apples.....	164,355	206,716	+ 25.8	4,581	8,400	+ 83.3
Stocks on Farms, October 1						
Corn (old crop).....	154,903	60,760	- 60.8	21,899	11,876	- 45.8
Wheat.....	408,523	333,746	- 18.3	13,121	14,421	+ 11.0
Oats.....	941,801	912,274	- 3.1	107,038	120,461	+ 11.2

¹Source, U. S. D. A. Crop Report, October 1, 1937.²Six leading commercial producing states.

The soybean crop in Illinois is second only to the record crop in 1935, and because of marked expansion in recent years is several times as large as in the five-year period, 1928-1932. In other commercial producing states the crop is also materially larger than in 1936.

The apple crop in the entire country is one fourth larger than average (1928-1932) but in Illinois is well toward double. The large production of these three crops has resulted in materially lower prices per bushel.

Stocks of old crop corn on October 1 were the shortest on record, amounting to only about two fifths the usual carryover (Table 1). Stocks of wheat and oats on farms were lower than usual for the whole country, but larger in Illinois.

Cattle Feeding. The good corn crop and short supplies of grain fed cattle and high prices for finished cattle point to a material increase in feeding operations for late fall and winter as compared to a year ago. The increase in feeding is expected to be general in the Corn Belt, but most marked in areas east of the Mississippi River, where corn production is above average. While shipments from August to December from the 17 states in the western cattle area which supply a large part of feeder cattle are expected to be about 5 percent under the movement a year ago, there are in the Corn Belt considerable numbers of cattle which were shipped in in 1936 and carried over on roughage, and which will go on feed this fall. Of the cattle moving and to move into feeding areas, a larger proportion than last year will likely be placed on grain feed, and fewer roughed thru the winter. This increased feeding activity will increase market supplies of fed cattle in late winter and spring with the anticipated result of lower prices and smaller margins than were obtained in the early months of 1937.

The position of the lower grades of slaughter cattle will likely continue strong because of the demand for cattle for feedlots, maintaining prices of such cattle and reducing numbers for slaughter.

Lamb Feeding. While total slaughter of lambs and sheep from December, 1937, thru May, 1938, may be about the same as a year earlier, more will likely be marketed as fed lambs prior to March 1, and fewer as grass-fat yearling lambs from March to May. A large proportion of the feeder lambs are produced in 13 western states of which Texas produces the largest numbers, but the feeding areas for any year are greatly influenced by the distribution of feed supplies. A year ago feed supplies were plentiful in the producing areas but very short in the Great Plains and the Corn Belt. As a result only a small proportion of the 1936 Texas lamb crop was sold as feeder lambs in the fall of that year; most were wintered in the production area and marketed from grass from March to June of 1937. This year the feed situation is less favorable in

producing areas and plentiful in the Corn Belt. It is expected that considerably increased numbers of lambs will be put on feed in the Corn Belt and in Texas, but fewer in other western states.

The lamb feeding situation this year will be largely dominated by the disposition of the large 1937 Texas lamb crop. While shipment of feeder lambs from other range areas are expected to be about the same as last year, those from Texas will be much greater. Aside from movements thru markets, there has already been a record movement direct to feeders in other states, principally Iowa, Missouri, Illinois, Indiana, and Ohio.

R. C. Ross

THE SOYBEAN MARKETING OUTLOOK

Early in October soybeans were bringing about 30 cents less than a year earlier. This was due to the greater abundance of oil seeds and feedstuffs. The most important items in this are the large cotton crop—now estimated at around 17½ million bales, and the corn crop, estimated at about 2½ billion bushels. Cotton yields a by-product, cotton seed, from which are obtained cottonseed oil and meal, the principal competitors with soybean oil and meal. Soybean oil averaged 7.9 cents per pound in October, 1936. Early in October this year it was quoted under six cents per pound. Soybean oil meal averaged \$36.90 per ton in Chicago in October 1936 and on October 13 this year it was quoted at \$27.20 per ton.

The margin between the value of soybean products and the price of soybeans seems to be less than last year. This narrower margin probably reflects not only increasing competition caused by new processing plants in this country, but also foreign demand. At the end of September the price of soybeans at Manchurian ports was reported as equal to 90 cents a bushel. Because of the high ocean freight rates which prevail because of war demands for shipping, soybeans can be shipped more cheaply from Chicago to the ports of Western Europe than from remote Manchuria. With soybeans in Chicago down to the 90-95 cent level, it is likely that export sales are being made which tend to maintain the price here and to narrow the margin between the value of soybean products and the price of soybeans.

Last year the average price of soybeans increased 36 cents a bushel between October and March (the storage season) due to advances in price of oil (equal to 15 cents a bushel on beans), narrowing of margin (equal to 11 cents), and advances in price of meal (equal to 10 cents a bushel). Such a rise is not likely this year because the margin is narrower, there is not the speculative interest which advanced prices of all speculative commodities during that period last year, and the greater abundance of feedstuffs which will make less demand for protein supplements (soybean oil meal). Any material advance in prices of soybeans appears improbable unless Manchurian supplies were cut off which is likely only in the event that Russia enters the far eastern war or other developments interfere with international trade.

Is a material decline in price from this level likely? Soybeans have been more stable in price in the last month than other grains, indicating a firmer basis under the market. Also, the scarcity of lard will help to maintain prices of vegetable oils altho after the first of the year increasing receipts of heavier hogs will increase lard supplies. The feedstuffs are dominated by corn and in years of larger corn crops the low corn price of the season is usually reached when the heavy harvest movement is underway. There is one point, however, to be kept in mind. Should the financial weakness continue as indicated by declining prices for securities, it will have a depressing influence on prices of both soybeans and corn.

CREDIT USED BY ILLINOIS FARMERS

The credit needs of farmers grow out of their requirements for capital to operate their farms. This capital may come from inheritance, savings, or borrowings. Altho the subject of farm income has been studied in great detail, comparatively little information is available as to methods of financing used by farmers.

At the time when the farm account summaries for 1935 were returned in the summer of 1936, a statement was obtained as to the amount, source, and use then being made of credit by 1,055 of these farmers.

Purposes for Which Credit Was Used. The purposes for which outstanding debts had been incurred by these farmers, classified by tenure, are shown in Table 2. Two hundred eighty-two, or about 27 percent, were not using credit at

TABLE 2.—PURPOSES FOR WHICH BORROWED FUNDS WERE USED BY 1,055 FARM ACCOUNT KEEPERS, JUNE, 1936

	Owners		Part-owners		Tenants		All farmers	
	No.	Amount	No.	Amount	No.	Amount	No.	Amount
Number reporting.....	348		278		429		1,055	
Number borrowing.....	269	\$2,677,586	235	\$1,786,021	269	\$328,949	773	\$4,792,556
Percent borrowing.....	77.3		84.5		62.7		73.3	
Purpose								
1. Ownership of land								
a. Purchase of land..	232	\$1,740,938	205	\$1,153,966	5	\$ 13,400	442	\$2,908,304
b. Refinancing.....	74	562,815	61	342,314			135	905,129
c. Improvements.....	18	71,423	17	80,050	1	150	36	151,623
Total.....	324	\$2,375,176	283	\$1,576,330	6	\$ 13,550	613	\$3,965,056
2. Other capital purposes								
a. Cattle.....	32	\$ 58,844	38	\$ 57,913	46	\$ 60,426	116	\$177,183
b. Other livestock..	12	24,721	15	12,075	25	18,193	52	54,989
c. Machinery.....	46	23,299	67	31,664	129	66,957	242	121,920
d. Auto.....	3	1,250	5	1,477	12	4,557	20	7,284
e. Start farming....			1	1,900	16	23,670	17	25,570
f. Refinancing.....					21	20,456	21	20,456
Total.....	93	\$108,114	126	\$105,029	249	\$194,259	468	\$407,402
3. Operation and consumption								
a. Feed.....	11	3,865	9	2,505	13	5,709	33	12,079
b. Interest.....	9	7,735	8	4,010	3	875	20	12,620
c. Rent.....			5	1,140	21	12,872	26	14,012
d. Merchant credit..	8	1,406	7	730	13	1,670	28	3,806
e. Miscellaneous....	52	106,099	29	38,431	43	20,730	124	165,260
f. Operating.....	59	75,191	61	57,846	95	79,284	215	212,321
Total.....	139	\$194,296	119	\$104,662	188	\$121,140	446	\$420,098

the time of the survey. A larger percentage of part-owners (85 percent) had debts than either owners (77 percent) or tenants (63 percent). The part-owner class includes many operators who are expanding the scope of their operations. These are either owners of small farms who are renting additional land, or tenants who have purchased some acreage. Fewer of these highly selected tenants are in debt because they need less capital than owners or part-owners.

A large percentage of borrowed funds was used by all groups for capital purposes—to finance ownership of land or other property: the percentage so used represented 92.7 percent of the total used by owners, 94.1 percent for part-owners, and 63.2 percent for tenants.

Sources of Funds. The Federal Land Bank furnished most of the long-term credit. Insurance companies and private individuals were next in amount loaned. The chief sources of short and intermediate term credit were in order of importance: individuals, banks, production credit associations, and implement

companies, with the first two by far the most important. There was surprisingly little merchant credit. The percentage of credit furnished by the Federal Land Bank is higher for these groups than for farmers, in general. The proportions of long and short term credit from various sources can be summarized as follows:

Long Term Credit		Owners (percent)	Part-owners (percent)	All groups (percent)
Federal Land Bank		66.9	63.8	65.5
Insurance companies		12.5	14.9	13.6
Individuals		12.8	12.1	12.5
Banks		6.3	7.7	6.9
Others		1.5	1.5	1.5
		100.0	100.0	100.0

Short Term Credit		Owners (percent)	Part-owners (percent)	Tenants (percent)	All groups (percent)
Individuals	51.9	51.9	41.8		49.9
Banks	34.5	32.2	36.0		34.8
Production credit associations	4.0	5.8	7.4		5.5
Implement companies	1.4	4.4	9.2		4.5
Other	8.2	5.7	5.6		5.3
	100.0	100.0	100.0		100.0

Individuals furnished over half of the short term credit used by owners and part-owners and over 40 percent of that used by tenants. It is not known whether this is typical or whether it is a development growing out of the banking difficulties of a few years ago. It would appear that banks and other institutional lenders that wish to build up their volume of loans to farmers ought to recognize the importance of lending by individuals. If the funds so used were directed into other investment channels, there would be greater possibilities of a larger volume of farm financing.

Security Given. The security given in connection with this credit was reported to be as follows:

	No.	Amount	Percent of total
First mortgages on real estate	402	\$3,378,834	70.5
Second mortgages on real estate	92	300,960	6.3
Total	494	\$3,679,794	76.8
Chattel mortgages	196	238,869	5.0
Implement notes	157	69,916	1.5
Other secured notes (chiefly endorsements)	150	156,466	3.3
Unsecured notes	428	625,405	12.8
Book accounts	69	11,104	0.3
Warehouse receipts	2	1,770	0.1
Unknown	31	9,232	0.2
Total	1,527	\$4,792,556	100.0

Practically all of the long term credit was secured by real estate mortgages. A substantial part of the short and intermediate term credit was reported as being furnished on an unsecured basis. About two-thirds of this unsecured credit was furnished by individuals. The loans obtained from banks were about equally divided between unsecured and secured notes (either by chattel mortgages or endorsements). It should be borne in mind that the judgment note commonly used in Illinois can be converted into a secured loan very quickly and with little or no expense to the lender.

L. J. NORTON and JOSEPH ACKERMAN

¹⁻⁵Original data for Tables A and B were obtained from the following sources: (1) Bureau of Agricultural Economics, U.S.D.A. Beginning with January, 1936, cash income to Illinois farmers includes the revised estimates of the Bureau; (2) Illinois Crop Reporting Service, Illinois State Department of Agriculture, and U. S. Department of Agriculture, cooperating; (3) Monthly data include an average of current month with eleven preceding months; (4) Federal Reserve Board; (5) National Industrial Conference Board. For explanations of computations, see Number 2, July, 1935.

TABLE A.—INDEXES OF BUSINESS CONDITIONS, SAME MONTH 1921-1929 = 100

	Whole-sale prices of all com- modities (U. S.) ¹	Farm prices		Cash income to Illinois farmers		Prices paid by farmers for com- modities bought (U. S.) ¹	Pur- chasing power of income to Illinois farmers	Factory payrolls in the United States ⁴	Cost of living in the United States ⁵	Pur- chasing power of factory payrolls
		Illinois ²	United States ¹							
				Millions ¹	Indexes ³					
1929.....	97	109	103	\$548.6	108	100	108	112	99	113
1930.....	88	95	89	459.7	91	96	95	91	96	95
1931.....	74	65	61	309.5	61	82	74	69	86	80
1932.....	66	44	46	228.7	45	71	63	48	77	62
1933.....	67	47	49	276.7	55	70	79	51	74	69
1934.....	76	64	64	312.7	62	80	77	64	78	82
1935.....	82	88	76	378.1	75	82	91	73	82	89
1936.....	82	91	80	453.1	90	81	111	85	84	101
Sept., 1936...	83	101	87	34.4	85	83	102	86	85	101
May, 1937...	90	112	92	37.8	95	87	109	107	88	122
June, 1937...	90	109	89	38.7	96	87	110	106	88	120
July, 1937...	90	110	89	52.7	96	87	110	107	88	122
Aug., 1937...	90	107	87	45.9	96	86	112	107	88	122
Sept., 1937...	..	101	83	....	..	85	...	...	88	...

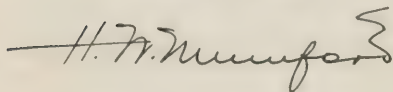
TABLE B.—PRICES AND PRICE INDEXES OF ILLINOIS FARM PRODUCTS

Product	Prices					Indexes: same month 1921-1929 = 100		
	September average		Sept. 1936	Aug. 1937	Sept. 1937	Sept. 1936	Aug. 1937	Sept. 1937
	1910-14	1921-29						
Corn, bu.....	\$.66	\$.81	\$ 1.07	\$ 1.00	\$.96	132	120	118
Oats, bu.....	.36	.36	.40	.25	.27	111	69	75
Wheat, bu.....	.90	1.16	1.06	1.03	.96	91	89	83
Barley, bu.....	.61	.60	1.00	.64	.69	167	103	115
Hogs, cwt.....	7.98	10.02	10.30	12.50	11.20	103	125	112
Beef cattle, cwt.	6.18	8.22	7.50	10.90	10.50	91	134	128
Lambs, cwt.....	5.60	10.79	8.50	9.90	9.90	79	93	92
Milk cows, head	54.00	71.00	56.00	63.00	61.00	79	89	86
Veal calves, cwt..	7.54	10.99	8.30	10.10	10.50	75	98	95
Sheep, cwt.....	4.04	5.89	3.55	4.30	3.70	60	77	63
Horses, head....	150.00	85.00	106.00	101.00	98.00	125	116	115
Butterfat, lb.....	..	.39	.34	.30	.32	87	81	82
Milk, cwt.....	1.49	2.26	2.00	1.80	1.90	88	80	84
Eggs, doz.....	.19	.30	.22	.18	.20	75	72	66
Chickens, lb.....	.12	.21	.15	.18	.18	73	85	89
Wool, lb.....	.19	.33	.29	.33	.33	87	101	99
Apples, bu.....	.71	1.24	1.20	.65	.65	97	51	52
Hay, ton.....	13.90	12.39	12.40	10.60	9.40	100	86	76
Potatoes, bu.....	.88	1.26	1.50	.85	.85	119	62	68
Illinois index of farm prices.....	101	107	101

1-8For sources of data in tables see previous page.

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ILLINOIS FARM ECONOMICS

Department of Agricultural Economics, College of Agriculture and Agricultural Experiment Station, in cooperation with the Extension Service in Agriculture and Home Economics, University of Illinois

Urbana

November and December, 1937

Numbers 30 and 31

CURRENT ECONOMIC DISCUSSIONS ON THE AIR

The following special Agricultural Economics broadcasts are a part of the programs in Agriculture and Home Economics which are broadcast regularly by the College of Agriculture. The Agricultural Programs are daily except Saturday at 12:30 to 1:00 P.M. The Home Economics Programs are Monday, Wednesday, and Friday, 10:02-10:15 A.M., Station W I L L, 580 Kilocycles.

December 3—Using New Inventions to Sell More Milk—R. W. BARTLETT and P. H. TRACY.

December 10—The Farm Family Keeps Accounts—H. C. M. CASE and Miss J. LITA BANE.

December 17—Outlook for 1938—P. E. JOHNSTON and J. J. PIEPER.

December 24—Merry Christmas—E. H. REGNIER.

December 31—1937 Retrospect—C. L. STEWART and H. W. HANNAH.

Farm and Home Week. The Annual Farm and Home Week of the College of Agriculture will be held January 10-14, 1938, with a strong program featuring many lines of work of the College. On Wednesday, January 12, a special program in Agricultural Economics will be of interest to many readers of this publication. This is a program giving recognition to account keepers who have cooperated with the College and their County Farm Bureaus for 10 years or more in keeping records on their farms. A more detailed announcement will be mailed at an early date to anyone who makes a request to the College.

SEASONAL TYPES OF CORN PRICE MOVEMENTS

Corn price movements from one year to another depend very largely upon changes in the size of the corn crop. Demand conditions, of course, are also important, but nevertheless it is usually possible to judge about what the change in the average price from one season to the next will be, once we know the approximate size of the new crop.

From the standpoint of the farmer who has corn to sell, however, changes of prices within the season are also of primary importance. If he has some basis of judging what is the most probable course of corn prices within a given season he can adjust his marketing practices accordingly. While it is more difficult to

The outlook information in this issue is based upon reports issued by the Bureau of Agricultural Economics, U.S.D.A.—R. C. ROSS, *Editor*.

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explain corn price movements within a season than the year-to-year changes, there are some very important differences in characteristic seasonal movements which may be helpful to those who have corn to sell or who need to buy corn.

One type of corn price movement which is fairly typical under certain conditions is the sort which occurred in the years 1901-1902, 1924-1925, and in 1934-1935. In those years the highest level of corn prices during the period from October to the following summer occurred in mid-winter. These were all periods following extremely short corn crops. The course of corn prices for each of these years is shown in Fig. 1.

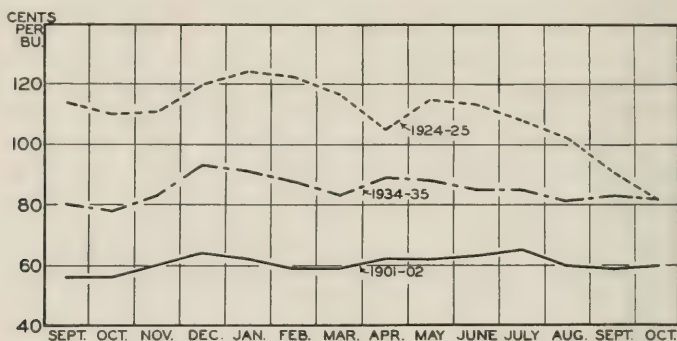


FIG. 1.—CORN PRICES IN TYPICAL YEARS OF EXTREMELY SHORT CROPS

Prices on all charts are for No. 3 yellow corn at Chicago. 1901-02, 1924-25, and 1934-35 were years when corn production was extremely short relative to the number of hogs to be fed, and for the winter and spring months prices reached their highest level in either December or January.

The reason for the type of price movement which usually occurs in years of extremely short corn crops is to be found in changes of demand. Prices in the early part of the season are likely to be determined largely by farmers' and speculators' knowledge that the crop is very short and hence the price level will be well above the level of the previous year. As the marketing season progresses and a small volume of receipts during November and December confirms the small crop estimates, prices are likely to advance somewhat. With the coming of late winter and spring, however, it is likely to become apparent that the demand for corn is not quite so great as it was in the immediately preceding years. Stocks of corn do not decline as rapidly as in years of normal crops and there are fewer purchasers. Hence there is a tendency for the market to sag in the late winter and spring months.

In these years demand was reduced on account of the reduction in numbers of hogs. Although moderately short corn crops may or may not be accompanied by declining hog numbers, in years when the corn crop is extremely small, there is almost sure to be a decline. Thus in 1902 there were, on January 1, only 46,800,000 hogs compared with 53,200,000 a year earlier. On January 1, 1925 there were 55,770,000, compared with 66,576,000 in 1924. On January 1, 1935 there were only 39,004,000 against 58,621,000 a year previous. Hogs are fed on early and to light weights, and fewer sows are kept for breeding purposes. The effect of this is to reduce the farm utilization of corn below that in normal years. Corn purchases by feeders are especially reduced in late winter and spring. Thu

the reduction in hog numbers undoubtedly was an important factor in causing the sagging market in late winter and early spring.

The type of corn price movement indicated above, however, does not always take place in years of extremely short crops. An outstanding exception was 1936-37. Indeed, it was noted in *Illinois Farm Economics* for September and October, 1936, that "While the number of bushels produced is very small, the number of bushels per hog is slightly larger than in 1924," and that "The reduction of hog numbers from January 1, 1936 to January 1, 1937 is likely to be much less than that which occurred during 1934."

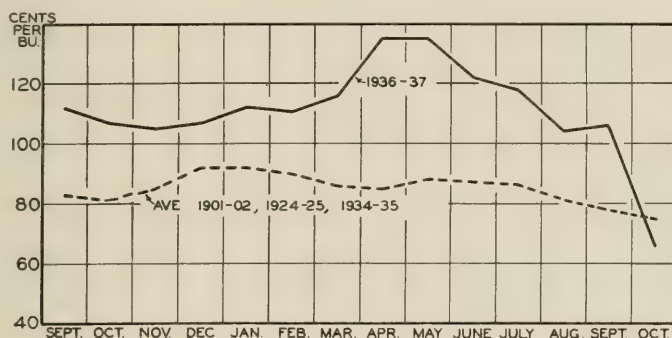


FIG. 2.—CORN PRICES IN YEARS OF EXTREMELY SHORT CROPS: AVERAGE OF TYPICAL YEARS, AND 1936-37

Unlike the typical years, corn prices in 1936-37 were higher in the spring months than in mid-winter. This was because there was no marked decrease in hog numbers as is usually the case in years of extremely short crops.

As a matter of fact, it turned out that the fall pig crop of 1936 was larger than in the year before, and hence the reduction of hog numbers on January 1, 1937 was much less than was expected when the above mentioned article was written. The extent of the difference may be indicated by the fact that the federal outlook report for 1937, which was issued in December, 1936, stated that "indications in June were for a fall pig crop of around 26 million head. It is now evident that not more than 19 or 20 million pigs will be saved from this crop." (U. S. Department of Agriculture, Bureau of Agricultural Economics Miscellaneous Publication 255, page 33). However, when the results of the pig survey became available, later in the month of December, the pig crop was estimated at 23,815,000. This change in the prospects for hog numbers naturally made a difference in the type of corn price movement to be expected, and made it no longer likely that the movement of prices from the fall of 1936 to the summer of 1937 would follow the course typical of years of extremely short crops when there had also been a marked reduction in hog numbers. The January 1, 1937 number of hogs on farms (42,474,000) was almost as large as the number a year earlier (42,837,000). The actual course of corn prices in 1936 was as shown in Fig. 2. After reaching a temporary peak in December, prices fell off a little but then rose sharply in the spring months as the effect of the shortage of feed—for the number of hogs and other livestock actually on hand—became more acute.

In years when large crops follow small crops, corn prices usually have a very different type of seasonal movement than in years of extremely small crops. This

is shown by Fig. 3, which compares prices in the crop years of 1902-03, 1925-26 and 1935-36. In each of these years prices declined rapidly in the early fall as the larger, new crop became available. From mid-winter to spring there is no striking similarity of movement. In one of the years prices declined; in another they rose and in the third, there was first a decline and then a rise.

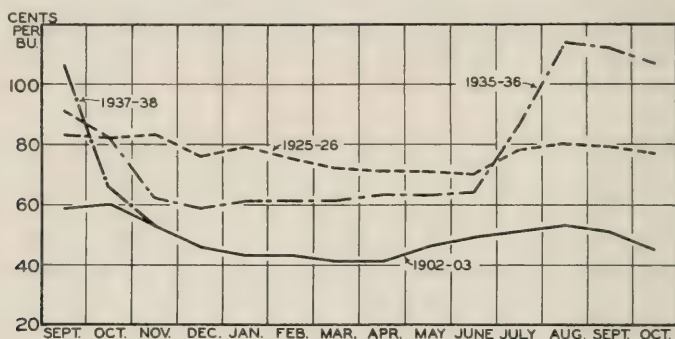


FIG. 3.—CORN PRICES IN YEARS OF LARGE FOLLOWING EXTREMELY SHORT CROPS

There is no very typical movement of corn prices in years of large following extremely short crops except for the decline in the fall months.

In order to understand the reasons for what occurred, it is necessary to consider what happened to hog numbers. As of January 1, 1903, the number of hogs in the United States was estimated at 47,200,000, a very slight increase from the 46,800,000 of the previous year. In 1926 there were 52,105,000 hogs compared with 55,775,000 a year earlier—that is, there was a further decrease in hog numbers the second year following a short corn crop, instead of an increase. In 1936 however, there were 42,837,000 hogs, an increase of nearly 3 million over the 39,004,000 of January 1, 1935. Here we have an important reason for the difference between the price movements which occurred from November to May of the three years in which larger crops followed years of extremely short crops. In the one year (1935-36) when there had been a marked increase in hog numbers over the previous year, corn prices made a gradual gain from December to May. In the year when there had been a marked decrease in hog numbers (1926-27), there was a general downward trend of corn prices from early winter to late spring, whereas in the year when there was only a very slight increase in hog numbers (1902-03) prices declined somewhat during the winter and then rose again a little in the spring.

Perhaps a still further comparison will be helpful to indicate the effect of changing hog numbers upon the seasonal course of corn prices. Since the World War there have been only two occasions in which January 1 hog numbers have increased by more than 10 percent over the level of the previous January. In 1923 there was an increase of 15.8 percent and in 1928 an increase of 11.5 percent. There have been three other years when the increases in hog numbers have amounted to 5 percent or more and one year in which the increase over the previous January was just under 5 percent. The percentage increases for these various years are as follows:

1923	15.8	1932	8.1
1928	11.5	1927	6.5
1936	9.8	1933	4.8

It will be noted from Fig. 4 that in both years when the increase in hog numbers was 10 percent or more there was a marked increase in the price of corn from December to the following spring. Fig. 5 and Fig. 3 (for 1935-36) show that in the other years either the increase was less marked or there was an actual decrease during that period.

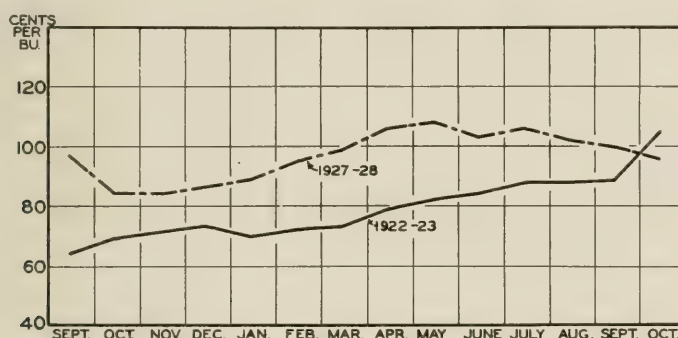


FIG. 4.—CORN PRICES IN SELECTED YEARS OF INCREASING HOG NUMBERS

In both of these years there was a marked increase in hog numbers on January 1, compared with the preceding January, and business activity was improving.

It is to be borne in mind, however, that the situation in 1931-32 and 1932-33 was very largely influenced by facts other than hog numbers. In 1931-32 there was a rapid downward swing of the depression and commodity prices generally were decreasing. During 1932-33 recovery began, accompanied by devaluation of the dollar and a general commodity price inflation which was the primary cause of the rapid upswing of corn prices from February to the following July. In 1931-32, had it not been for the downward trend of business activity and of commodity prices generally, the increase in hog numbers would probably have been sufficient to cause a considerable improvement of corn prices from December

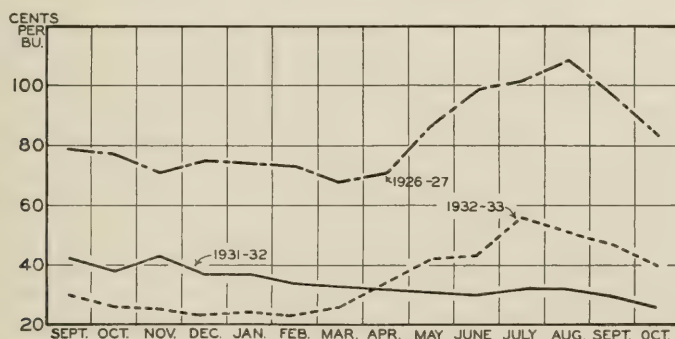


FIG. 5.—CORN PRICES IN SELECTED YEARS OF INCREASING HOG NUMBERS

In each of these years hog numbers increased only moderately. The movement of corn prices in 1931-32 and 1932-33 was influenced largely by business conditions and the general commodity price level. Beginning in May of 1927 corn prices of 1926-27 were dominated by new crop conditions.

to May, whereas in 1932-33, had it not been for the devaluation of the dollar there would have been a much smaller rise of prices from December 1932 to May 1933.

In any attempt to apply the experience of past years to the current season, the first question which arises is "What has actually happened to hog numbers?" The spring pig crop of 1937 is reported to have been 7 percent smaller for the United States and 2 percent smaller in Illinois than the spring pig crop of 1936. It is the pigs from the spring crop which normally come on the market during the winter season from October to April. On account of the shortage of corn from the 1936 crop it is likely that a larger proportion than usual of the corn fed to 1937 spring pigs will be from the current year's crop rather than the old crop, and hogs farrowed in the spring will be fed corn later in the season than usual.

According to the spring pig crop report, the number of sows bred to farrow in the fall of 1937 was 3 percent less than the fall of 1936 for the United States as a whole, while in Illinois a decrease of 9 percent was indicated. If the actual decreases in the fall pig crop should be as indicated in the spring survey, it is doubtful whether there will be any marked increase in hog numbers on January 1 in spite of the tendency to hold back hogs and feed them for longer periods before marketing. The results of the fall pig survey will not be available until the latter part of December, but when these data are available, it should be possible to judge better the extent to which there will be an increase or decrease in the number of hogs to be fed from the 1937 corn crop.

Finally, in appraising the outlook for hog prices for the current season it must be borne in mind that in the past few months there has been a rapid downturn of industrial production and some falling off of the average level of commodity prices. The decrease in commodity prices thus far has been due mainly to larger crops lowering the prices of farm products but if the recession in business activity continues much further, it is likely that prices may be materially affected by it and consequently the trend of business activity might become a dominant factor in affecting the trend of corn prices from December 1937 to May 1938.

E. J. WORKING

LOANS ON SEALED CORN¹

Since 1927 Illinois law has provided for the sealing of corn and other grain in farm cribs or granaries. This is done through County Farm Warehouse Boards, acting for the State Director of Agriculture. Certificates are issued which can be used as collateral for loans. Since 1933 considerable quantities of corn have been sealed in this way, and loans obtained. In 1933 the Commodity Credit Corporation—a government corporation—loaned 45 cents a bushel, without recourse, on notes secured by such certificates. In one form or another, similar loans have been made in each succeeding year. Lending by banks and other credit agencies on this type of collateral has gradually developed.

For 1937 the Commodity Credit Corporation has announced that it will loan 50 cents per bushel, without recourse, on the security of sealed corn to farmers who cooperated in the 1937 Soil Conservation Program. This is for corn with 14½ percent moisture and the quantity will be reduced two percent for each percent increase in moisture. Above 20½ percent moisture, loans will not be made. The effect of this is to reduce the loan one cent per bushel for each one percent increase in moisture, based on quantity at time loan is made.

Loans may be of two types, for different purposes. They may be (1) *stabilization loans*, which aim at maintaining a particular level of prices, or they may be (2) *credit loans*, which merely permit a farmer to obtain credit on his

¹Paper presented before Third Annual Conference on Banking, University of Illinois, November 22-23, 1937.

stored crop. Stabilization loans would likely be above the market price and to be effective, would need to be available to a very large percentage of producers who market the commodity. The 1937 government corn loan is being made at 3-5¢ above the current market price but inasmuch as a substantial percentage of corn producing farmers did not cooperate in the 1937 Soil Conservation Program, there is a large volume of corn ineligible for such loans. Hence the stabilization features of this year's loan are not of great importance. It is not, however, strictly a credit loan, since it is made without recourse and for slightly more than the market price.

Banks and other lending agencies may handle Commodity Credit Corporation paper. The reported division of the four percent rate to be paid by the farmer is $2\frac{1}{2}$ percent to the local agency and $1\frac{1}{2}$ percent to the Commodity Credit Corporation. Such paper is, in effect, guaranteed by the government.

Loans May Be Made by Other Agencies. On a strictly credit basis, banks and other lending agencies can use sealer's certificates as security for loans. Banks which confine their operations strictly to unsecured loans would perhaps not be interested, even tho they make loans to regular customers in order to permit them to hold their corn. There are many farmers who are not entitled to unsecured credit, that are entitled to a reasonable loan on the security of sealed corn.

The value of these certificates as collateral depends on how well the local boards and sealers and the responsible state officials do their respective jobs. Based on past experience, the latter will be expected to give vigorous supervision and to follow up violations which impair the value of the collateral.

The procedure for loans on this collateral is simple:

(1) The applicant applies to County Warehouse Board, which is located at the Farm Bureau Office, to have his corn sealed.

(2) He should be required to furnish a statement from his local elevator as to moisture content of the grain. The corn should be under 20 percent, and soybeans under 14-15 percent.

(3) The grain should be insured up to the market value for damage from fire, lightning and tornado. Specific insurance is desirable, so that there will be no question in case of loss. This insurance is available in connection with sealed grain at 75¢ per \$100.

(4) The sealer's certificate when completed is endorsed to the lender. A copy can be filed with the County Recorder and it then has the effect of a chattel mortgage. A prudent lender will, of course, satisfy himself that there are no liens on the crop by checking the court house record or following the Daily Reporter, and also in case of a tenant by learning the nature of the rental agreement.

(5) A collateral form of note is used with the certificate properly described in the collateral agreement.

(6) Loans should, of course, be confined to a reasonable percentage of the local value of the grain. In years like 1937 when a large crop of corn follows a short one, there has typically been only a moderate increase in the price of corn, unless a drouth occurred in the following summer, as in 1936, or until there is an expansion in the number of hogs. There has, however, commonly been very little decline in price from the early winter level. On the basis of past experience a loan for a reasonable percentage of the value of a crib of corn would involve very little hazard at this time.

L. J. NORTON

¹⁻⁵Original data for Tables A and B were obtained from the following sources: (1) Bureau of Agricultural Economics, U.S.D.A. Beginning with January, 1936, cash income to Illinois farmers includes the revised estimates of the Bureau; (2) Illinois Crop Reporting Service, Illinois State Department of Agriculture, and U. S. Department of Agriculture, cooperating; (3) Monthly data include an average of current month with eleven preceding months; (4) Federal Reserve Board; (5) National Industrial Conference Board. For explanations of computations, see Number 2, July, 1935.

TABLE A.—INDEXES OF BUSINESS CONDITIONS, SAME MONTH 1921-1929 = 100

	Whole-sale prices of all commodities (U. S.) ¹	Farm prices		Cash income to Illinois farmers		Prices paid by farmers for commodities bought (U. S.) ¹	Purchasing power of income to Illinois farmers	Factory payrolls in the United States ⁴	Cost of living in the United States ⁵	Purchasing power of factory payrolls
		Illinois ²	United States ³	Millions ¹	Indexes ³					
1929.....	97	109	103	\$548.6	108	100	108	112	99	113
1930.....	88	95	89	459.7	91	96	95	90	95	95
1931.....	74	65	61	309.5	61	82	74	68	86	79
1932.....	66	44	46	228.7	45	71	63	48	77	62
1933.....	67	47	49	276.7	55	70	79	49	74	66
1934.....	76	64	64	306.1	60	80	75	64	78	82
1935.....	82	88	76	362.1	72	82	88	72	82	89
1936.....	82	91	80	453.1	90	81	111	85	84	101
Sept., 1936...	83	101	87	34.4	85	83	102	86	85	101
June, 1937...	90	109	89	38.7	96	87	110	106	88	120
July, 1937...	90	110	89	52.7	96	87	110	107	88	122
Aug., 1937...	90	107	87	45.9	96	86	112	107	88	122
Sept., 1937...	89	101	83	35.6	97	85	114	102	88	116
Oct., 1937...	85	90	78	....	..	84	...	100	88	114

TABLE B.—PRICES AND PRICE INDEXES OF ILLINOIS FARM PRODUCTS

Product	Prices					Indexes: same month 1921-1929 = 100		
	November average		Nov. 1936	Oct. 1937	Nov. 1937	Nov. 1936	Oct. 1937	Nov. 1937
	1910-14	1921-29						
Corn, bu.....	\$.54	\$.67	\$.95	\$.50	\$.42	142	68	63
Oats, bu.....	.37	.38	.40	.26	.26	105	68	68
Wheat, bu.....	.91	1.18	1.09	.92	.83	92	80	70
Barley, bu.....	.63	.59	1.02	.66	.64	173	112	108
Hogs, cwt.....	6.94	8.69	9.00	10.40	8.50	104	108	98
Beef cattle, cwt.	5.96	7.90	7.80	10.00	8.40	99	124	106
Lambs, cwt.....	5.58	10.62	7.90	9.60	8.80	74	90	83
Milk cows, head	54.00	72.00	57.00	62.00	62.00	79	86	86
Veal calves, cwt..	7.30	10.21	8.30	10.30	9.30	81	94	91
Sheep, cwt.....	3.94	5.60	3.15	3.80	3.75	56	67	67
Horses, head....	148.00	83.00	109.00	98.00	94.00	131	117	113
Butterfat, lb.....	....	.43	.32	.33	.35	75	80	82
Milk, cwt.....	1.81	2.34	2.00	2.00	2.05	86	87	88
Eggs, doz.....	.27	.44	.32	.22	.26	73	62	60
Chickens, lb.....	.10	.19	.12	.18	.17	65	90	90
Wool, lb.....	.18	.34	.30	.31	.29	88	94	84
Apples, bu.....	.79	1.50	1.30	.55	.65	87	40	43
Hay, ton.....	13.92	12.91	12.70	9.50	9.50	98	76	74
Potatoes, bu.....	.71	1.26	1.20	.75	.70	95	62	56
Illinois index of farm prices.....						101	90	...

1-5For sources of data in tables see previous page.

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ILLINOIS FARM ECONOMICS

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Urbana January, 1938 Number 32

GRAIN SUPPLIES AND LIVESTOCK ON FEED

Both grain and livestock farmers are interested in information recently released by the Bureau of Agricultural Economics concerning supplies of grains on farms, and numbers of livestock on feed. Such information can well be used by farmers in planning their livestock programs for 1938, or when to sell grains.

Stocks of Corn, Oats and Wheat. Stocks of corn, oats and wheat on farms in the United States on January 1, 1938 are large as compared with years since 1934 and stocks of both corn and oats are larger than the average for 1928-32.

GRAIN STOCKS ON FARMS IN THE UNITED STATES ON JANUARY 1 (1,000 BUSHEL)

	Corn	Oats	Wheat
1928-32.....	1,384,343	686,164	249,495
1934.....	1,476,505	457,496	204,674
1935.....	841,666	354,668	145,811
1936.....	1,399,826	770,712	165,355
1937.....	806,935	482,158	128,314
1938.....	1,667,989	688,937	208,745

Seventy-one percent of the previous year's corn crop was still on farms January 1, 1938 as compared with 64 percent for January 1, 1937, and 65 percent for the average of the years 1928-32. The large supply of corn on farms, altho the 1937 crop was only slightly above average and export shipments have been larger than average, reflects the smaller numbers of livestock being fed.

Fewer Pigs Saved in 1937 Than in 1936. Farmers in the United States plan to have only five percent more sows to farrow in the spring of 1938 than farrowed in the spring of 1937. In the spring of 1936, following the good corn crop of 1935, 30 percent more sows farrowed than in the previous spring. This respective increase for the spring pig crop of 1938 is less than was expected.

The latest available data indicate that in 1937 the spring pig crop (38.6 million head) was seven percent and the fall crop one percent smaller than the corresponding crops in 1936. The 1938 spring crop of pigs will be larger than those of 1937, 1935 and 1934, but smaller than the 1936 crop and much smaller than the very large crop of 1933. The fact that the combined spring and fall pig crops of 1937 (62.2 million head) was 22 percent (17.8 million head) less than the average for the five years, 1929-33, accounts in part for the greater supplies of corn now on farms and indicates that until the next corn crop is available, hogs will use less than average amounts of corn. Illinois farmers who have their 1938 spring crops ready for market first are likely to receive the best prices.

More Cattle on Feed. The number of cattle on feed in the 11 Corn Belt States on January 1, 1938 was 15 percent larger than a year earlier. This was

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NUMBER OF PIGS SAVED IN THE UNITED STATES
(Million Head)

	Spring crop	Fall crop	Total crop
1933.....	53.5	30.7	84.2
1934.....	39.7	17.1	56.8
1935.....	32.4	22.7	55.1
1936.....	41.5	23.8	65.3
1937.....	38.6	23.6	62.2
1938.....	40.6 ¹	....	....

¹As indicated by December 1, 1937 'breeding' intentions reports.

less, however, than the number January 1, 1936, following the good corn crop of 1935. Increases over 1937 occurred in all Corn Belt States except Kansas and Michigan, the largest percentage gains being in South Dakota, Nebraska and Iowa. Cattle on feed in Illinois increased 15 percent. Numbers on feed in the Corn Belt as a whole apparently are not large in comparison with those fed in other years of large corn crops. Numbers on feed in the Eastern Corn Belt, however, are the largest in nearly 15 years. Numbers on feed in areas outside the Corn Belt January 1, 1938 are not greatly different from a year ago. Reports on expected months of marketing show that in the past five years the largest percentage is intended for marketing in May or later.

Largest Number of Lambs on Feed Since 1932. The number of sheep and lambs on feed January 1, 1938 in the United States (6.07 million) was about 11 percent larger than a year earlier. The average number January 1 for the period 1932-36 was 5.64 million, as contrasted with the record number of 6.16 million January 1, 1932. The increase in feeding this year over last has occurred in the Corn Belt, where the number this year was 3.29 million compared with 2.72 million on January 1, 1937. A considerable part of the increased number of lambs on feed this year over last are Texas lambs; this will decrease the number of grass fat yearlings that will be marketed in the spring of 1938 as compared with 1937. The total slaughter of sheep and lambs during the first four months of 1938, therefore, is not expected to show the increase indicated by the numbers on feed January 1, 1938. This year a much larger proportion of the four months' slaughter is expected to occur in January and February than last year.

Feed Grain Supplies Are Large as Compared With Livestock. The total supply of all feed grains for use in 1938 is larger than in any year since 1932, in relation to the livestock to which these grains are to be fed. Even though as much as 100 million bushels of corn is exported this year, a larger than normal carry-over of corn is likely at the time the 1938 crop is ready for harvest.

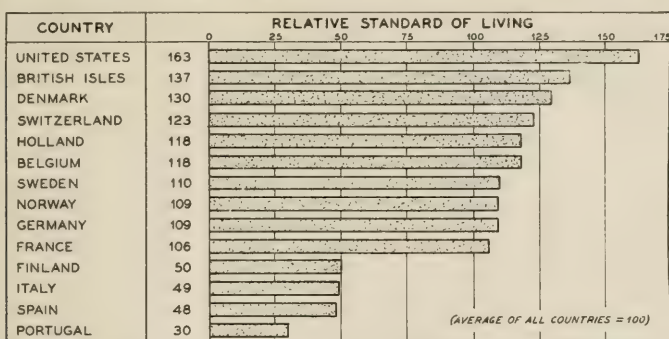
As a result of drouth damage the 1937-38 Argentine corn crop has been unofficially estimated at only 197 to 236 million bushels as contrasted with 360 million bushels produced in 1936-37. The exports and price of corn in the United States will be influenced by the amount of corn available for export from the new Argentine crop which will be available in April or May.

P. E. JOHNSTON

COMPARISON OF LIVING STANDARDS IN DIFFERENT COUNTRIES

American people are now enjoying a material standard of living higher than that of any other country according to a recent study of living standards published in the quarterly *Journal of Economics* in February, 1937 (Fig. 1). Based upon a comparison of several different items from 1924 to 1933, the United States ranked first in the consumption of citrus fruits and bananas, per capita use of motor vehicles, telephone and telegraph service, and in the number of railroad locomotives and mileage of telephone and telegraph wires per 100,000 people.

FIG. 1. INDICATIONS OF RELATIVE STANDARDS OF LIVING OF 14 COUNTRIES, 1924-33.¹



¹By Bennett, M. K. *Measurement of Relative National Standards of Living*. Quarterly Journal of Economics, Vol. LI, February, 1937.

In education, the United States, with 61 percent of the children between 5 and 20 years of age in school, ranks second only to Germany where 64 percent of the children in this age group attend elementary or secondary schools. This computation did not include a large number of students from 17 to 20 years of age who are attending college.

Living standards are highest in the countries which have long enjoyed the freedom of a democratic government, standards in the British Isles, Denmark, and Switzerland ranking close to those in the United States.

Turning to the low-standard countries, one is not particularly surprised to note that war-torn Spain and Fascist Italy are near the bottom of the list. Following the World War, Italy turned to Fascism, while poverty-stricken Spain could offer little resistance to the exploitation of conflicting outside forces now fighting within her borders.

Living standards in Russia, Japan, and China at the present time are so low as to almost defy comparison with those of other countries.

While the American people continue to enjoy a material standard of living higher than that of any other country, the 1929-32 depression caused the worst breakdown ever recorded in our economic system. Though this depression was world-wide in scope, living standards in the United States suffered far more than those in other countries. By 1932 the total volume of industrial production in this country had declined 46 percent from the 1929 level, as compared with a 28 percent decline for commercial countries other than the United States.

Recession in business activity in the United States during the latter part of 1937 is indicated by the decline in the rate of increase in industrial production for the year as a whole. In contrast with this, industrial production in other countries increased faster in 1937 than in preceding years. Unless something unforeseen disrupts the upward movement in world production, it is probable that a resumption of the upward movement in industrial production in the United States may be expected by the middle of 1938.

R. W. BARTLETT

¹⁻⁵Original data for Tables A and B were obtained from the following sources: (1) Bureau of Agricultural Economics, U.S.D.A. Beginning with January, 1936, cash income to Illinois farmers includes the revised estimates of the Bureau; (2) Illinois Crop Reporting Service, Illinois State Department of Agriculture, and U. S. Department of Agriculture, cooperating; (3) Monthly data include an average of current month with eleven preceding months; (4) Federal Reserve Board; (5) National Industrial Conference Board. For explanations of computations, see Number 2, July, 1935.

TABLE A.—INDEXES OF BUSINESS CONDITIONS, SAME MONTH, 1921-1929 = 100

	Whole-sale prices of all commodities (U. S.) ¹	Farm prices		Cash income to Illinois farmers		Prices paid by farmers for commodities bought (U. S.) ¹	Purchasing power of income to Illinois farmers	Factory payrolls in the United States ⁴	Cost of living in the United States ⁵	Purchasing power of factory payrolls
		Illinois ²	United States ¹	Millions ¹	Indexes ²					
1929.....	97	109	103	\$548.6	108	100	108	112	99	113
1930.....	88	95	89	459.7	91	96	95	90	95	95
1931.....	74	65	61	309.5	61	82	74	68	86	79
1932.....	66	44	46	228.7	45	71	63	48	77	62
1933.....	67	47	49	276.7	55	70	79	49	74	66
1934.....	76	64	64	306.1	60	80	75	64	78	82
1935.....	82	88	76	362.1	72	82	88	72	82	89
1936.....	82	91	80	453.1	90	81	111	85	84	101
Nov., 1936...	84	101	84	42.1	87	83	105	93	84	111
Aug., 1937...	90	107	87	45.9	96	86	112	107	88	122
Sept., 1937...	89	101	83	35.6	97	85	114	102	88	116
Oct., 1937...	85	90	78	34.4	97	84	115	100	88	114
Nov., 1937...	85	...	75	36.3	96	84	114	91	87	105

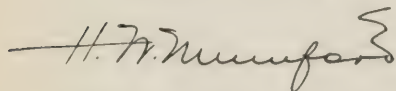
TABLE B.—PRICES AND PRICE INDEXES OF ILLINOIS FARM PRODUCTS

Product	Prices						Indexes: same month 1921-1929 = 100		
	December average		Dec. 1936	Nov. 1937	Dec. 1937		Dec. 1936	Nov. 1937	Dec. 1937
	1910-14	1921-29							
Corn, bu.....	.52	.68	\$.97	\$.42	\$.45		143	63	66
Oats, bu.....	.37	.40	.45	.26	.27		112	68	68
Wheat, bu.....	.92	1.22	1.18	.83	.84		97	70	88
Barley, bu.....	.63	.62	1.07	.64	.64		173	108	106
Hogs, cwt.....	6.68	8.34	9.60	8.50	7.80		115	98	94
Beef cattle, cwt..	5.84	7.88	7.60	8.40	7.50		96	106	95
Lambs, cwt.....	5.68	11.03	8.10	8.80	8.40		73	83	76
Milk cows, head..	54.00	73.00	56.00	62.00	60.00		77	86	82
Veal calves, cwt..	7.22	10.06	9.10	9.30	9.10		90	91	90
Sheep, cwt.....	4.06	5.87	3.15	3.75	3.60		54	67	61
Horses, head....	145.00	80.00	111.00	94.00	95.00		139	113	119
Butterfat, lb.....	...	.44	.32	.35	.37		72	82	84
Milk, cwt.....	1.87	2.34	2.00	2.05	2.10		86	88	90
Eggs, doz.....	.29	.47	.30	.26	.27		64	60	57
Chickens, lb.....	.10	.19	.12	.17	.17		63	90	91
Wool, lb.....	.19	.34	.31	.29	.27		90	84	79
Apples, bu.....	.97	1.66	1.50	.65	.75		91	43	45
Hay, ton.....	14.15	13.12	13.10	9.50	10.00		100	74	76
Potatoes, bu.....	.73	1.30	1.25	.70	.80		96	56	62
Illinois index of farm prices.....							103	83	...

¹⁻⁵For sources of data in tables see previous page.

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ILLINOIS FARM ECONOMICS

Department of Agricultural Economics, College of Agriculture and Agricultural Experiment Station, in cooperation with the Extension Service in Agriculture and Home Economics, University of Illinois

Urbana

February, 1938

Number 33

CURRENT ECONOMIC DISCUSSIONS ON THE AIR

The following special Agricultural Economics broadcasts are a part of the programs in Agriculture and Home Economics which are broadcast regularly by the College of Agriculture. The Agricultural Programs are daily except Saturday at 12:30 to 1:00 P.M. The Home Economics Programs are Monday, Wednesday, and Friday, 10:02-10:15 A.M., Station WIL L, 580 Kilocycles.

March 4—Farm Practices That Pay. M. L. MOSHER, W. A. HERRINGTON and EMMETT FRUIN.

March 11—Corn Exports. L. J. NORTON and L. H. SIMERL.

March 18—The Current Economic Situation as It Affects the Farmer. G. L. JORDAN and J. W. GREEN.

March 25—Special broadcast. The 50th Anniversary of the Illinois Agricultural Experiment Station.

April 1—Farmers' Intentions for 1938. P. E. JOHNSTON and N. O. THOMPSON.

LIVESTOCK ON FARMS, JANUARY 1, 1938

Numbers of livestock on farms in the United States on January 1, 1938 were not greatly different from those of a year earlier. Reports of the Crop Reporting Board of the Bureau of Agricultural Economics, U.S.D.A., indicate larger numbers of hogs and sheep, and smaller numbers of horses, mules, cattle and chickens.

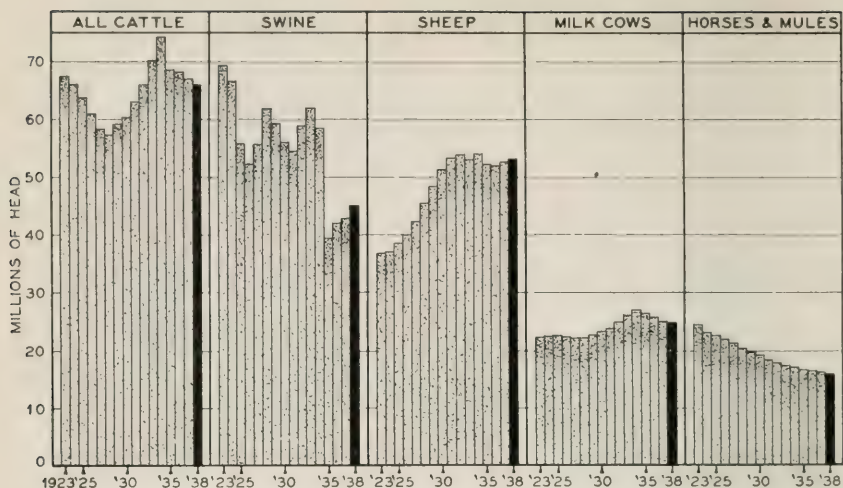
Numbers of most kinds of livestock tend to move in cycles, numbers increasing successively for several years and then declining over a period of time. The length of these cycles varies with the kind of livestock, being relatively long for cattle and relatively short for hogs. The normal cyclical changes were severely affected by the drouth of 1934, which caused heavy liquidation of cattle and hogs and to a less extent, of sheep (Fig. 1).

TABLE 1.—NUMBERS AND VALUE OF LIVESTOCK ON FARMS, UNITED STATES, JANUARY 1, 1938

	Number (thousands)	Change from Jan. 1, 1937 percent	Farm value per head	Total farm value (thousand dollars)
Horses.....	11,163	-2.5	\$ 90.83	\$1,013,960
Mules.....	4,477	-2.1	122.43	548,121
All cattle.....	65,930	-0.8	36.64	2,415,690
Milk cows (2 yrs. and over).....	24,902	-0.4	54.45	1,355,926
Milk heifers (1-2 yrs.).....	4,923	-0.8	.....	.....
Heifer calves.....	5,250	-0.6	.....	.....
All sheep.....	52,918	+0.6	6.12	323,746
All hogs.....	44,418	+3.4	11.21	498,025
Chickens.....	387,251	-7.9	.76	292,650

The outlook information in this issue is based upon reports issued by the Bureau of Agricultural Economics, U.S.D.A.—R. C. ROSS, Editor.

Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. H. W. MUMFORD, Director, Extension Service in Agriculture and Home Economics, University of Illinois



Livestock on farms in the United States on January 1, 1923-1938.

Following this heavy liquidation, cattle numbers have continued to decline for four years and stand now at 88.5 percent of the 1934 peak. Hog numbers, on the other hand, have increased steadily each year since the heavy reduction and are now 71.5 percent of the 1933 peak. Sheep numbers were less affected by the drouth of 1934 and have since regained about half of the reduction at that time. Numbers of milk cows have followed those of all cattle, except the extent of change has been less, and numbers are now 92.5 percent of the 1934 figure. Horse and mule population has continued to decline steadily since 1918, because of displacement by mechanical power. Data on numbers and values of livestock January 1, 1938 are given in Table 1.

For the United States the combined value of horses, mules, cattle, hogs and

TABLE 2. NUMBERS AND VALUE OF LIVESTOCK ON ILLINOIS FARMS, JANUARY 1, 1936, 1937 AND 1938¹

Year	Number thousands	Value per head	Total value 1000 dollars	Year	Number thousands	Value per head	Total value 1000 dollars
Horses				Mules			
1938	703	\$ 93	\$65,633	1938	102	\$111	\$11,328
1937	732	106	77,526	1937	108	120	13,004
1936	739	105	77,939	1936	110	114	12,567
All cattle				Milk cows (2 years and over)			
1938	2,646	\$43.30	\$114,515	1938	1,123	\$ 59	\$66,257
1937	2,620	41.00	107,479	1937	1,146	55	63,030
1936	2,700	40.30	108,698	1936	1,169	53	61,957
Heifers 1-2 years for milk				Sheep and lambs			
1938	214	.....	.....	1938	1,000	\$ 6.80	\$ 6,778
1937	220	.....	.....	1937	922	6.70	6,153
1936	200	.....	.....	1936	971	7.10	6,900
Hogs (including pigs)				Chickens			
1938	4,134	\$13.60	\$56,236	1938	21,645	\$.83	\$17,965
1937	4,053	14.40	58,467	1937	23,527	.66	15,528
1936	3,860	14.60	56,314	1936	22,841	.80	18,273

¹Data from Bureau of Agricultural Economics, U. S. D. A.

sheep was \$4,799.5 millions on January 1, 1938, or slightly less than the \$4,819.8 millions value a year ago.

The trend of livestock numbers in Illinois from January 1, 1937 to January 1, 1938 has generally been in the same direction as for the United States, altho the extent of change has differed somewhat. (Table 2).

During the past year numbers of hogs on Illinois farms increased 2 percent and sheep 8 percent; all cattle increased 1 percent, but milk cows decreased 2 percent; horses declined 4 percent, mules 6 percent and chickens 8 percent. Values of Illinois livestock per head on January 1 were greater than those for the country as a whole.

R. C. Ross

CORN EXPORTS

For the first time since 1928-29 this country is exporting corn in volume to foreign countries. Shipments from October 1 to the end of January amounted to fourteen million bushels. This is a very small amount in relation to the 1,667 million bushels of corn on farms on January 1, 1938; nevertheless, these exports have represented an important market factor since they took this quantity off the cash market at a time when normal demand was light. It is expected that during the winter season exports will continue chiefly from ports on the Gulf of Mexico, such as New Orleans and Mobile, and after the Great Lakes are open to navigation, shipments will be made by that route for export from Montreal and other North Atlantic ports. As long as the route to the east involves the necessity of an all-rail shipment, the route by way of New Orleans or Mobile is cheaper for Illinois corn. As soon, however, as the Great Lakes are open to navigation, that route will be the cheapest. During the last twenty years the Straits of Mackinac between Lakes Michigan and Huron have opened at dates ranging from April 3 to May 2.

Corn is being exported because American corn is cheaper and more available than that from other sources. Argentine supplies were reduced by heavy shipments to the United States last summer. Southeastern Europe has difficulty in shipping corn at this season because of high moisture content and poor country roads. American supplies are abundant and relatively cheap and we have transportation and commercial facilities to deliver a merchantable commodity at this season.

From about the first of December to the first of January corn prices rose rather rapidly and were at a premium at St. Louis. This rise reflected the bidding by exporters for corn to fill sales. When the price rose to fifty cents per bushel at country stations, liberal sales were made. In the week ending December 14, receipts at primary markets amounted to twelve million bushels. After corn prices declined, receipts fell to three million bushels for the week ending January 27. This illustrates farmers' reaction to prices and their ability to hold when prices are believed to be unfavorable.

Apparently, the movement of corn was so large that congestion developed. Embargoes were finally put into effect at certain points. One difficulty in exporting corn through the eastern ports or the Gulf of Mexico is the necessity of drying it down to grade Number 2. This limits the rate of movement to the capacity of the drying equipment. In view of the world shortage of corn, exports will likely continue thruout the winter within the limits of the facilities.

Since 1920-23, when exports of corn were large, exports in any volume have been rare after April when the new Argentine corn crop becomes available. This year, however, such exports may continue into the late spring and summer months. The new crop in Argentine is expected to be short, supplies in this country are large in an area adjacent to Chicago, and the relation between future prices of

corn at Chicago and at Buenos Aires is such as to favor exports from this country after the new crop is available there.

In relation to livestock numbers corn supplies are large and continuation of export outlets will be helpful from the market standpoint. While supplies on farms on January 1 were estimated at 190 million bushels less than in 1933 (the year of a large crop and of 12-15¢ prices) the amount available per hog on farms January 1 this year was thirty-eight bushels of corn per hog compared to thirty bushels in 1933.

While these exports are directly related to shortages of corn in foreign countries, the low level of prices here has stimulated exports of corn as well as of certain other farm products. Since early in November the average price of a number of commodities in the futures market has been about stationary at the lowest level that has prevailed since our price level became adjusted to our devalued dollar early in 1935. It is likely that the increased exports of corn and other farm products which have developed at this price level is responsible for this leveling off of the price averages during the past four months.

L. J. NORTON

THE IMPLICATIONS OF RECENT MONEY AND CREDIT DEVELOPMENTS¹

Farmers are primarily interested in two effects of monetary and credit developments. The first is their influence upon prices, and the second upon the availability of credit. This article will be limited to the monetary and credit developments as they relate to prices.

We are constantly reminded that the objective of the Federal government is the restoration of commodity prices to the 1926 level. Several ways and means have been used to facilitate this rise in commodity prices. The most spectacular and widely publicized of these have been connected with our monetary system. As a result, there is a wide-spread belief that price levels can be largely controlled through control of our banking and credit systems. Those economists and students who have studied the monetary developments and their influence consistently are more skeptical than is the general public concerning the possible accomplishments through banking and credit manipulations alone. For example, Federal Reserve Board governor, M. S. Szymczak, asserted recently, "The more one surveys monetary history, the clearer it becomes that what can be accomplished through monetary and credit measures by themselves is strictly limited." Nevertheless, the Federal government operating largely through the Federal Reserve System has used various measures in the last few years in attempts to control certain price levels by means of controls of money and credit.

Credit Controls. As a result of the rapid increase in government borrowing from the banks of the country, expenditures of these funds and their redeposit with banks, reserves in excess of those required to safeguard depositors increased rapidly during 1934 and 1935, reaching about \$3,000,000,000 late in 1935. It was during this period that many of us were discussing the matter of inflation. It was pointed out for example, that \$3,000,000,000 in excess reserves, with the reserve requirements at that time, would permit additional loans and investments by the banking system of approximately \$30,000,000,000, which was considerably more than all the loans and investments held by reporting member banks at that time.

The large amount of excess reserves and the impossibility of controlling the lending operations of reserve member banks through open-market operations of the reserve banks led to the request for some additional and more effective con-

¹Prepared for Farm and Home Week, January 11-14, 1938.

trols of the credit system in order to prevent a runaway inflation. The Federal Reserve System already had several methods of control available, including changes in the rediscount rates of reserve banks and open-market operations of the reserve banks. The President of the United States also had authority to change the price of gold still further. The Federal government and the Reserve System had had for many years the power to influence the lending of member banks through moral suasion; that is, through an attempt to influence the operations of banks by written or spoken words. It was decided, however, in 1936 that additional controls would be necessary if inflation were to be prevented, so a law was passed authorizing an increase in the reserve requirements of banks. For many years the legal reserve requirements of our banks have been 13 percent for banks in central reserve cities, 10 percent for banks in reserve cities, 7 percent for country banks, and 3 percent for all banks on time deposits. Effective August 15, 1936, this rate was increased by 50 percent. Effective March 1, 1937, the rate was increased by another 25 percent of the original base, and finally May 1, 1937, the rates were increased by a further 25 percent so that the total increase from August 15, 1936, to May 1, 1937, was 100 percent. The rediscount rate of the New York Federal Reserve Bank had been reduced to 1½ percent very early in 1934, and maintained at that figure until the middle of 1937. At that time it was further reduced to 1 percent, where it stands today. The reserve banks themselves expanded credit greatly from the middle of 1931 until the early part of 1933. Some contraction occurred thereafter, particularly during the first half of 1934, with practically no change since.

Of the four monetary and credit control measures available, two have been used for inflationary or price-raising purposes during recent years, one remained constant during the last three years, and one was drastically deflationary. The devaluation of the dollar in 1934, of course, was inflationary. The lowering of the rediscount rate was an attempt to ease the credit situation and induce borrowing. The amount of reserve bank credit outstanding remained stable so had neither an inflationary or deflationary effect, but the increase of 100 percent in the reserve requirements of our banks was quite deflationary. Since the latter part of 1936 a fifth control measure has been used. The Secretary of the Treasury is authorized to buy gold as it comes into the United States, and to issue interest-bearing obligations of the Federal government for this gold. This is a process known as gold sterilization. It means that the gold is not permitted to be used as a basis of bank credit expansion, as it would be if gold certificates were issued to the Federal Reserve banks and they were used as a basis of bank credit. This inactive gold fund increased rapidly during 1937 to something like one and one-third billions. On September 12, 1937, however, the Secretary of the Treasury released \$300,000,000 of this fund in order to attempt to offset some of the deflationary effects of the 100 percent increase in reserve requirements of banks. In February 1938 he indicated that only receipts of gold in excess of \$100,000,000 a quarter would be placed in the inactive gold fund. This last move, unless the policy is changed, would be somewhat inflationary.

What of the Future. There is considerable agitation in and out of Congress at the present time to ease the monetary situation. There is a widespread belief, for example, that increasing the reserve requirements of banks by 100 percent was too drastic, and that it was partially instrumental in causing the recent fall in commodity prices and reduction in business activity. The same people who are asking for a relaxation of these requirements are also suggesting that the Secretary of the Treasury release all or most of the inactive gold fund. These suggestions are based upon the theory that with an easing of credit on the part of

commercial banks borrowing will be facilitated, that credit therefore will expand, and with the increased volume of credit prices will once more start upward, and with increased prospects for profit all employers will increase operations. This will reduce unemployment and greatly increase the income of individuals and also, incidentally, of the Federal government through the taxation of the increased income of businesses and individuals. The change in policy relating to the inactive gold fund doubtless is one reaction to this demand for easier credit. Certainly the reserve requirements will not be further increased during the coming year. The excess reserves are now considerably above a billion dollars so there seems to be no lack of available funds at the present time for loaning purposes. The reserve banks themselves are in a position to increase or decrease the amount of credit they have outstanding. They have recently increased somewhat their purchases of securities. So long as the demand for credit does not increase more rapidly than present business conditions indicate, the rediscount rate of the Federal Reserve Bank is unlikely to be increased soon. Neither has there been any indication on the part of the President that the gold content of the dollar will be changed:—certainly not in the direction of further deflation.

Influence of Credit on Prices. Because there is a tendency for prices to rise at the same time that credit expands, and for prices to fall at the same time that credit contracts, there is a widespread belief that prices depend upon the volume of money or credit available. We all know, for example, that if our income were twice as large as it is today we would spend twice as much money. We might not spend twice as much for food, but we might spend more than twice as much for an automobile or a residence or something of that sort. This belief that prices depend upon the amount of money and credit available leads to the agitation for increased money and increased credit, largely because most people are happier and more work is available when prices are increasing. It has been very definitely shown that the actual purchasing power of many classes of people, including industrial workers, salaried workers and bond holders, decreases during the periods of rapidly rising prices. But at least more people have work and the optimism of the employers is somewhat contagious.

Let us see how prices behaved in relation to credit in the past. During the period 1923 to 1929, inclusive, credit expanded greatly in the United States, but for what purpose was this credit used? Stock prices headed for the celestial regions. Bond prices made two big advances, one early in 1924 and the other late in 1926 and early 1927. A very large amount of credit was used to finance land and building purchases and construction between 1924 and 1928. Commodity prices declined. During 1930, 1931, and 1932 prices of all kinds declined, and credit contracted greatly. Since 1933, credit has expanded and prices have increased. The theoretical question always rises, did prices increase because credit expanded, or did credit expand because prices increased? Volumes have been written on this subject. It is the writer's opinion that one interacts with the other, but that there is a tendency for credit expansion to be governed by the outlook for profit which may be initiated and sustained by increasing prices. On the other hand, credit restrictions can very definitely force a reduction in prices because of the necessity to sell goods to obtain funds to pay off loans. It is possible, for example, that the drastic increase in reserve requirements of our banks that was initiated late in 1936 brought about a sale of securities by banks. Credence is lent to this suggestion by the fact that one of the first indicators to turn down was the investments of member banks. The sale of bonds by banking systems naturally would have a depressing influence upon the stock market, and it may be that the restriction of credit, therefore, was one of the causes, but not necessarily the most

important cause, that initiated the recent drastic decline in stock prices and business activity. If that were true, it does not mean, however, that making credit easy will as promptly reverse the trend. One would expect increased purchases of bonds by the banking systems in order to make good use of their reserves, would also increase the demand for interest bearing stocks, particularly if the supply of bonds purchased by the banks were not new government issues but were bought from the general public. Increasing stock prices indicate an optimistic outlook and encourage greater industrial production, and more employment, and thereby help the situation in every way.

As a final thought, I would like to discuss very briefly the gold situation. The world output of gold has increased very rapidly since the depression started. A very large fraction of this production has reached the United States, but England and the Netherlands, and to a certain extent some other countries, have increased their gold holdings recently. If it were not for the fact that a number of countries, including Germany and Italy, still need quite a large sum of gold to use as adequate reserves for their banking and currency systems, the writer would be inclined to agree with Warren and Pearson in their most recent book, "World Prices and the Building Industry," that the outlook for increased prices during the coming years is very bright. Conditions seem to be improving slightly in the world as a whole, our foreign trade is increasing a little, and world prices on the average turned upward in 1937. This would seem to indicate that the direction of least resistance is upward and if some of our excess gold could be distributed to the countries that badly need it, in the writer's opinion world prices would continue to increase in terms of gold. Inasmuch as our monetary system is tied to gold, an increase in world prices would be reflected directly in the prices of a number of our commodities, particularly those which we export such as wheat and cotton, and eventually be diffused to other commodities.

Nothing has been said about government borrowing and government debt. If the government continues to operate in the red and borrows from the banks (by selling them government obligations) new purchasing power will be created. This would have a tendency to support incomes and prices as it has during the last five years. If, on the other hand, social security taxes are used to meet expenses in excess of receipts from other sources, no new borrowing would be necessary and no inflationary implications would exist from this source. Present indications are that the latter method will be followed. When debt reduction takes place, there will be a transfer of funds out of the pockets of tax payers to the holders of government bonds which today consist largely of banks, insurance companies and similar financial institutions. President Roosevelt has indicated that the budget will not be balanced this year or next, so that item must still be considered as having an inflationary influence.

G. L. JORDAN

¹⁻⁵Original data for Tables A and B were obtained from the following sources: (1) Bureau of Agricultural Economics, U.S.D.A. Beginning with January, 1936, cash income to Illinois farmers includes the revised estimates of the Bureau; (2) Illinois Crop Reporting Service, Illinois State Department of Agriculture, and U. S. Department of Agriculture, cooperating; (3) Monthly data include an average of current month with eleven preceding months; (4) Federal Reserve Board; (5) National Industrial Conference Board. For explanations of computations, see Number 2, July, 1935.

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				Millions ¹	Indexes ¹					
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1932.....	66	44	46	228.7	45	71	63	48	77	62
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1935.....	82	88	76	378.1	75	82	91	73	82	89
1936.....	82	91	80	453.1	90	81	111	85	84	101
1937.....	88	102	86	472.8	93	85	109	101	87	116
Jan., 1937....	86	106	91	41.5	91	84	108	97	85	114
Oct., 1937....	85	90	78	34.4	97	84	115	100	88	114
Nov., 1937....	85	83	75	36.3	96	84	114	91	87	105
Dec., 1937....	84	79	72	33.2	93	83	112	82	87	94
Jan., 1938....	81	79	71	83	..	76	86	88

TABLE B.—PRICES AND PRICE INDEXES OF ILLINOIS FARM PRODUCTS

Product	Prices					Indexes: same month 1921-1929 = 100		
	January average		Jan. 1937	Dec. 1937	Jan. 1938	Jan. 1937	Dec. 1937	Jan. 1938
	1910-14	1921-29						
Corn, bu.....	\$.52	\$.67	\$ 1.02	\$.45	\$.49	152	66	73
Oats, bu.....	.37	.42	.50	.27	.28	119	68	67
Wheat, bu.....	.94	1.32	1.28	.84	.89	97	69	67
Barley, bu.....	.62	.64	1.09	.64	.68	170	106	106
Hogs, cwt.....	7.18	8.66	9.90	7.80	7.90	114	94	91
Beef Cattle, cwt.	5.46	7.45	8.00	7.50	7.10	107	95	95
Lambs, cwt.....	5.88	11.17	8.90	8.40	7.80	80	76	70
Milk cows, head	53.00	70.00	60.00	60.00	61.00	86	82	87
Veal calves, cwt.	7.10	10.37	10.60	9.10	9.60	102	90	93
Sheep, cwt.....	4.20	6.07	4.00	3.60	3.50	66	61	58
Horses, head....	150.00	83.00	114.00	95.00	96.00	137	119	116
Butterfat, lb.....	.....	.44	.33	.37	.31	75	84	71
Milk, cwt.....	1.84	2.38	2.00	2.10	2.05	84	90	86
Eggs, doz.....	.28	.39	.21	.27	.21	54	57	53
Chickens, lb.....	.10	.20	.14	.17	.18	67	91	87
Wool, lb.....	.21	.32	.33	.27	.27	104	79	85
Apples, bu.....	1.17	1.78	1.45	.75	.80	82	45	45
Hay, ton.....	13.58	14.47	13.60	10.00	9.90	94	76	68
Potatoes, bu.....	.75	1.30	1.35	.80	.80	104	62	62
Illinois index of farm prices.....	106	79	79

1-1For sources of data in tables see previous page.

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FREE—Co-operative Agricultural Extension
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ILLINOIS FARM ECONOMICS

Department of Agricultural Economics, College of Agriculture and Agricultural Experiment Station, in cooperation with the Extension Service in Agriculture and Home Economics, University of Illinois

Urbana

March and April, 1938

Numbers 34 and 35

CURRENT ECONOMIC DISCUSSIONS ON THE AIR

The following special Agricultural Economics broadcasts are a part of the programs in Agriculture and Home Economics which are broadcast regularly by the College of Agriculture. The Agricultural Programs are daily except Saturday at 12:30 to 1:00 P.M. The Home Economics Programs are Monday, Wednesday, and Friday, 10:02-10:15 A.M., Station W I L L, 580 Kilocycles.

April 22—"How Farm Costs Have Changed in the Last Twenty-Five Years"—R. H. WILCOX, G. E. TOBEN.

April 29—"Needed Rural Services"—D. E. LINDSTROM, E. H. REGNIER.

May 6—"Relationship Between Prices of Fluid Milk and Prices of Manufactured Dairy Products"—R. W. BARTLETT and H. A. RUEHE.

May 13—"The Farm Family Studies the Financial Record"—M. L. MOSHER, Mrs. RUTH GODSEY, F. A. PAINTER, J. B. CUNNINGHAM.

May 20—"The Current Economic Situation as It Affects the Farmer"—E. J. WORKING.

May 27—"Cost of Producing Milk"—R. H. WILCOX and E. B. COLEGROVE.

PHASES IN THE AGRICULTURAL SITUATION

Business Conditions. The general business situation remains depressed and uncertain. The drastic decline of business activity in the last four months of 1937 has flattened out and the first quarter of 1938 has registered further slight declines in business activity and prices. The seasonal improvement which was anticipated with the opening of spring has so far failed to materialize, further reducing morale and increasing unemployment.

The situation is affecting agriculture in reducing the demand for farm products and in weakening the price structure. Estimated farm income from farm marketings in January was 6 percent below January, 1937, and in February was 9½ percent below February, 1937. The rate of marketing of grains has been slowed down as indicated by the larger than usual stocks on farms.

Despite the unfavorable factors in the situation, both farm prices and the morale of farmers are in strong position as compared to 1932. Except for cotton, crop surpluses are not burdensome, altho the outlook for wheat is none too promising; the banking situation is sound; agricultural credit is ample, and the machinery is in operation to avoid the severe maladjustments of the past few years.

Activity in many lines of business is unsatisfactory. Profits of 2,280 corporations, as reported by the National City Bank of New York, were \$3,505 millions in 1937, compared with \$3,747 millions in 1936, or a return of 6.7 percent on net worth in 1937, compared with 7.3 percent in 1936. Lines of business showing the better returns in 1937 were confectionery and beverages, office equipment, auto-

The outlook information in this issue is based upon reports issued by the Bureau of Agricultural Economics, U.S.D.A.—R. C. Ross, *Editor*.

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mobiles and accessories, drugs and sundries, sales finance companies, machinery, chemicals, electrical equipment, liquors, merchandise chain stores (other than food), and hardware and tools. Among those showing the poorer returns were construction, cotton goods, woolen goods, meat packing, restaurant chains, Class I railways, traction and bus lines, fire and casualty insurance companies, coal mining, investment trusts, department stores, chain food stores and ice and cold storage companies.

Business earnings for 1937 average out the favorable period in the spring and the slump in the closing months. Earnings for the first quarter of 1938 will doubtless be much less favorable. The huge governmental spending program which has recently been proposed, if adopted, will add a stimulus to business, increase employment, and indirectly will strengthen the domestic demand for farm products.

Planting Intentions for 1938. Planting time is a time of optimism despite the uncertainties of climatic hazards of an unusual spring and of future prices of the products grown. Farmers' intentions of planting spring crops as announced by the Crop Reporting Board of the Bureau of Agricultural Economics for the country as a whole and for Illinois is indicated in the following table, in comparison with recent years.

UNITED STATES PLANTED ACREAGES

Items	1935	1936	1937	Indicated 1938	1938 as percent of 1937
	Thousand acres				
Corn.....	98,372	100,590	96,483	94,595	98.0
Spring wheat.....	22,143	23,959	23,750	22,282	93.8
Oats.....	40,690	39,117	37,101	36,333	97.9
Barley.....	13,140	12,121	11,570	10,947	94.6
Flax.....	2,392	2,548	1,302	1,112	85.4
Grain sorghums.....	11,232	9,153	8,377	8,826	105.4
Potatoes.....	3,592	3,191	3,216	3,102	96.4
Tobacco.....	1,437	1,437	1,706	1,784	104.6
Soybeans.....	6,640	5,811	6,139	5,906	96.2
Cowpeas.....	2,319	3,176	3,448	3,464	100.5
Tame hay.....	55,647	57,289	54,792	57,000	104.0
<i>Illinois</i>					
Corn.....	8,273	9,360	9,451	9,167	97
Spring wheat.....	26	34	41	33	80
Oats.....	3,916	3,641	3,671	3,671	100
Barley.....	80	103	135	148	110
Tame hay.....	2,858	2,943	2,487	2,826	114
Soybeans.....	2,270	1,887	2,151	1,893	88
Cowpeas.....	247	181	165	157	95

How closely will actual plantings in Illinois conform to these indications as of March 1? Since that date the goals have been set up under the Agricultural Adjustment Act. The corn acreage goal of 7,348,396 acres for Illinois indicates a marked reduction from the 1937 figures if a high percentage of compliance is attained. The prolonged wet weather in the first half of April will doubtless reduce the acreage of oats and increase that of soybeans. Winter killing of wheat and clover was less than usual, and little emergency planting will be required.

Wheat Prospects. Winter wheat prospects indicate a crop for harvest in 1938 about 40 million bushels larger than that of 1937. Abandonment this year was less than usual; the present prospect is 49.9 million acres for harvest and a total production of 725,707,000 bushels of winter wheat. The carryover of old wheat on July 1 of this year is estimated at about 200 million bushels. The spring wheat crop was estimated on the basis of March 1 intentions to plant at 22,282,000 acres. Should this planting materialize and a normal season follow, an average

spring wheat crop of 200 million bushels is entirely likely, making possible a total wheat crop for this year of about 925 million bushels and a visible supply on July 1 of 1,125 million bushels. The spring crop last year was 188,891,000 bushels on 17,514,000 acres. Hazards of various kinds obviously can materially reduce present estimates of production before harvest time. Should these estimates be attained, however, the country would be faced with a large surplus of wheat and a weak foreign demand which has absorbed the 1937 surplus much more slowly than had been hoped for.

Estimated production of winter wheat in important producing states in comparison with production for the ten-year average, 1927-36, and for 1937 follows:

	Average 1927-36	1937	Estimated, 1938		Average 1927-36	1937	Estimated, 1938
	Thousand bushels				Thousand bushels		
United States.....	546,396	685,102	725,707	Illinois.....	31,588	45,150	40,244
Kansas.....	133,463	158,040	174,460	Texas.....	29,984	41,690	39,862
Oklahoma.....	44,015	65,462	71,508	Missouri.....	21,576	41,097	37,940
Nebraska.....	46,400	45,654	61,373	Indiana.....	27,694	34,592	34,408
Ohio.....	34,585	46,056	48,220				

Grain Stocks on Farms. Grain stocks on farms of the United States on April 1 were much above the short stocks a year ago and somewhat higher than the ten-year average, 1927-36. In Illinois the stocks of grains are larger relatively than for the whole country. Corn stocks exceed the ten-year average by 83 percent, wheat by 48 percent, and oats by 61 percent.

GRAIN STOCKS ON FARMS ON APRIL 1¹

United States	Average 1927-36	1937	1938
	Thousand bushels		
Corn.....	793,082	409,074	1,067,678
Wheat.....	124,056	71,463	124,883
Oats.....	379,097	286,301	415,737
Illinois			
Corn.....	128,832	59,378	235,327
Wheat.....	4,024	2,004	5,944
Oats.....	39,307	32,871	63,261

¹From Bureau of Agricultural Economics.

Cattle on Feed. Cattle on feed in the eleven Cornbelt states on April 1, was estimated by the Bureau of Agricultural Economics as 20 percent or 200,000 head larger than a year ago. The number on feed this year, however, is smaller than for most years prior to the heavy liquidation in 1934.

Prospective marketings of these cattle indicate light marketing in the period April thru June, and heavier than usual marketing in late summer. This attitude on marketing reflects the lower prices on fed cattle and the abundant supplies and low prices of grains.

Cold Storage Holdings. Cold storage holdings on April 1 represented a favorable situation for producers of meats and lard, but unfavorable for producers of fruits, dairy products, and eggs. Holdings of important food products for the average of the five-year period, 1933-37, for last year and for this year are listed below. Meat products are considerably below the five-year average, the reductions being as follows: lard, 4 percent; pork, 12.5 percent; beef, 38.5 percent; and poultry, 5 percent. Holdings a year ago were much higher than the

COLD STORAGE HOLDINGS¹

	Unit	April 1, 1933-37	April 1, 1937	April 1, 1938
		<i>thousands</i>	<i>thousands</i>	<i>thousands</i>
Apples.....	bushels	8,334	7,360	12,060
Frozen fruits.....	pounds	52,978	48,284	98,833
Frozen vegetables.....	pounds		8,404	23,792
Butter, creamery.....	pounds	8,399	6,700	14,310
Cheese.....	pounds	66,596	85,216	77,141
Eggs, shell.....	cases	1,354	1,413	1,294
Eggs, frozen.....	case equivalent	1,270	1,516	2,735
Frozen poultry.....	pounds	83,002	120,328	78,725
Beef ²	pounds	82,076	142,691	50,468
Pork ²	pounds	620,147	755,777	543,407
Lard.....	pounds	126,885	217,227	121,413

¹Data from Bureau of Agricultural Economics. ²Includes frozen, cured and in process of cure.

five-year average, hence the reductions from last year's position are relatively greater. In the face of restricted demand, low storage holdings are a source of strength to current marketing.

Holdings of apples on the other hand are 44 percent above the five-year average,—a result of the very large crop last year. Apples, of course, cannot be carried over to the next year, as can frozen fruits and vegetables, which are becoming more important in the markets. Storage stocks of creamery butter, cheese and eggs are 70 percent, 16 percent, and 53 percent respectively above the five-year averages. The volume of these holdings is influenced both by abundant feed supplies and a mild winter, which kept up current production, and by the decreased consumer demand of recent months.

R. C. ROSS

ARGENTINE CORN CROPS AND EXPORTS OF UNITED STATES CORN

During the last 10 years Argentina has produced an average of 330 million bushels of corn annually. The crops have varied from 252 millions harvested in 1929 to 452 millions in 1935. During this same 10-year period exports have averaged 265 million bushels and these have ranged from 209 to 352 million bushels annually.

The 1938 crop now being harvested has been estimated by the resident observer of the United States Department of Agriculture in Argentina at 177 million bushels. The annual amount used at home (the difference between average production and exports) has averaged 65 million bushels for the last 10 years. Last year they apparently consumed a larger amount because of dry weather which made necessary additional feeding. If home consumption during the next year is as much as the average consumed in the last ten, only 110 million bushel will be available for export or 155 millions less than average and about 100 millions less than the low year for the period.

This means that exports of United States corn which have totaled between 35 and 40 millions since harvest last fall will continue. Exports might easily total 100 million bushels during the next 12 months. Our prices are in line and the quality of the 1937 crop excellent. After the Great Lakes open up—which will be in the near future—movement will be made easy by the adequate facilities along the Great Lakes-North Atlantic route. Next fall it will be easy for the grain trade to move corn to elevators close to the Atlantic ports so that corn may be exported next winter with less difficulty than was experienced during the past winter when exports had to come out of the new 1937 crop to a large extent and to move out by the ports on the Gulf of Mexico, where facilities are less adequate.

The larger the exports, the smaller the carryover will be next October. In spite of larger exports this carryover is likely to be large.

L. J. NORTON

HIGH MARKET MILK PRICES REDUCE MILK CONSUMPTION

A major problem in the market milk industry is how to increase consumption of milk. To dairymen, increased milk consumption means higher incomes; to consumers, a more adequate diet; and to distributors, an increase in sales means lower unit costs if these sales are handled by dealers now in business.

Studies of changes in retail milk prices (corrected for changes in consumers' income) in 51 cities and changes in the estimated per capita consumption of milk in the United States from 1930 to 1936 indicate that an *increase* in milk price is followed within about a year by a *decrease* in consumption, while after a year's interval milk consumption *increases* as milk prices *decline*.

Consumers' income declined more rapidly than retail milk prices from 1930 to 1933. Hence, when corrected for changes in consumers' income, milk prices in 1933 were substantially higher than in 1930 (Fig. 1). Thus, in 1933, retail milk

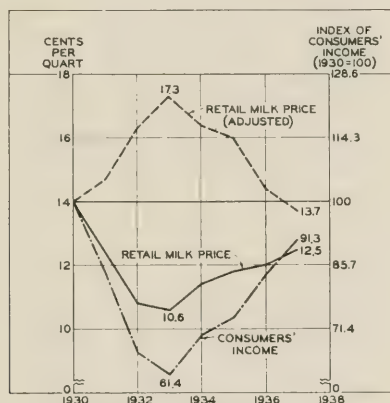


FIG. 1.—AVERAGE RETAIL PRICES FOR MARKET MILK IN 51 CITIES

Indexes of Consumers' Income (Other Than Agriculture) Available for Milk and Other Goods,¹ and Retail Prices for Market Milk Adjusted for Changes in Consumer Purchasing Power.

¹From U. S. Bureau of Labor Statistics.

prices actually declined to 10.6 cents per quart, but had they declined as much as consumers' income, the average retail price for 1933 would have been 8.6 cents ($61.4 \text{ percent} \times 14.0 \text{ cents}$) per quart.

Retail milk prices were adjusted for changes in consumers' purchasing power. This was done by dividing each annual price by the index of consumers' income and multiplying by 100. For example, the 1933 retail milk price was 10.6 cents, while consumers' purchasing power was 61.4 percent of that of 1930. This made the 10.6 cent price for milk equivalent to a price of 17.3 cents in relation to consumers' income in that year. ($10.6 \div 61.4 \times 100 = 17.3 \text{ cents}$).

From 1933 to 1937, consumers' income increased faster than retail milk prices, so that in 1937 the price of milk, adjusted for changes in consumers' income, had decreased to an equivalent of 13.7 cents per quart (Fig. 1). What effect did these changes in milk prices have upon per capita consumption of market milk?

A comparison of the estimated annual per capita consumption of whole milk in the United States and retail prices (adjusted for changes in consumers' purchasing power) indicates that:

1. The low point of per capita consumption was reached one year later than the high point in milk prices; and

2. From 1930 to 1936, after allowing for a delay of one year for adjustments in consumption because of price changes, the estimated per capita consumption of milk *decreased* when milk prices were increasing, and *increased* when milk prices were declining.¹ (Fig. 2).

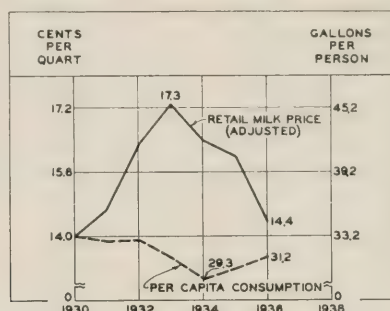


FIG. 2.—AVERAGE RETAIL PRICES OF MARKET MILK (ADJUSTED) COMPARED WITH PER CAPITA CONSUMPTION¹ OF MILK IN THE UNITED STATES, 1930 TO 1936

¹From Estimated Yearly Changes in Fluid Milk and Cream Consumption in Cities and Villages, U. S. Bureau of Agricultural Economics, February, 1938, page 11, Table 4.

Thus, from 1930 to 1933, milk prices in relation to consumers' income increased from 14.0 cents to the equivalent of 17.3 cents per quart, while from 1930 to 1934 estimated consumption of milk decreased from 33.2 gallons to 29.3 gallons per person. With the increase in consumers' income beginning in 1933, the equivalent price of milk in relation to consumers' income decreased from 17.3 cents in 1933 to 14.4 cents per quart in 1936, while milk consumption increased from 29.3 gallons in 1934 to 31.2 gallons per person in 1936.

High Market Milk Prices Encourage Canned Milk Consumption. The apparent consumption of evaporated and condensed milk in the United States increased from 11.4 pounds annually per person in 1921 to 17.8 pounds in 1937 (Fig. 3). While factors such as improved quality, advertising, and increased use as a baby food, probably have had some influence, the major cause for increased consumption of concentrated milk may be attributed to the relative cheapness of this product as compared with market milk.² In 1921 a housewife paid only 2.0 cents more for a quart of market milk than for a 14½ ounce can of evaporated milk, while by 1937 this price spread had increased to an average of 4.9 cents. In March, 1938, the price spread between market milk and evaporated milk had increased to 5.3 cents per unit.

Changes in price spread and consumption of evaporated and condensed milk which occurred from 1921 to 1930 may be summarized as follows:

Changes in the Price Spread		Changes in Consumption of Evaporated and Condensed Milk	
	Amount per unit		
1921 to 1930	Increase.....2.8 cents	Increase.....	5.2 pounds or 46%
1930 to 1932	Decrease.....0.9 cents	Decrease.....	2.2 pounds or 13%
1932 to 1935	Increase.....0.8 cents	Increase.....	2.5 pounds or 17%
1935 to 1936	Decrease.....0.3 cents	Decrease.....	0.4 pounds or 2%
1936 to 1937	Increase.....0.5 cents	Increase.....	1.3 pounds or 8%

What conclusions can be drawn from these facts?

¹The coefficient of correlation between retail milk prices (adjusted) lagged one year, and estimated per capita consumption of milk from 1930 to 1936, was $-.95 \pm .033$.

²The coefficient of correlation between the annual per capita consumption of evaporated and condensed milk and the amount that retail prices of market milk exceeded the retail prices of evaporated milk from 1921 to 1937, was $.94 \pm .027$.

In the first place, since high market milk prices result in an increase in consumption of concentrated milk, it is reasonable to believe that such an increase is accompanied by a decrease in the consumption of market milk. Since prices to producers for market milk usually are materially higher than those for concentrated milk, a decrease in whole milk consumption lowers incomes of dairymen.

In the next place, it is clear that consumers' purchase of low-priced milk products is not limited to depression periods. From 1921 to 1930, a period of urban prosperity, an increase of 2.8 cents per unit in price spread resulted in an increase of 5.2 pounds annually per person in consumption of these concentrated

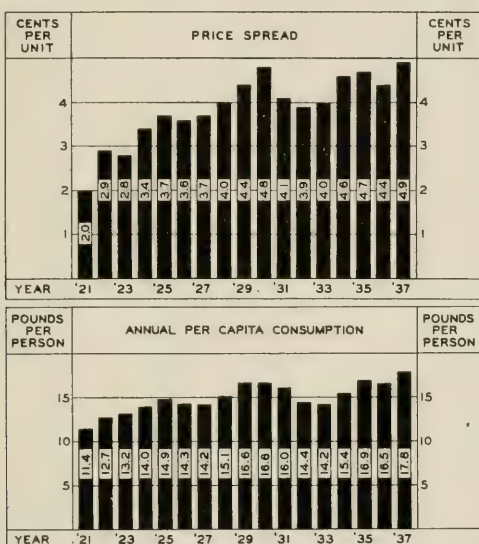


FIG. 3.—AMOUNT THAT THE AVERAGE RETAIL PRICE OF A QUART OF MARKET MILK IN 51 CITIES EXCEEDED THE RETAIL PRICE OF A 14.5 OUNCE CAN OF EVAPORATED MILK, AND THE APPARENT CONSUMPTION OF EVAPORATED AND CONDENSED MILK IN THE UNITED STATES, 1921-1937¹

¹Retail prices of market milk and evaporated milk for the 51 cities as reported by the U. S. Bureau of Labor Statistics. Apparent consumption of evaporated and condensed milk from 1921 to 1931 is reported in the Handbook of Dairy Statistics, U. S. Department of Agriculture, page 64; from 1932 to 1937 as reported in the Agricultural Situation, U. S. Department of Agriculture, adjusted to a per capita basis.

products, while from 1930 to 1932, a period of urban depression, a .9 cent decrease in price spread resulted in a decrease in consumption of 2.2 pounds per person.

Finally, it is probable that the increase in market milk consumption, as shown in Fig. 2, is being retarded at the present time by the continued widening of the spread between retail prices of market milk and evaporated milk. Since market milk consumption is still materially lower than that of 1930, leaders in the market milk industry may well consider the question: "Are present retail prices for market milk too high in relation to retail prices of evaporated milk and consumers' income?"

R. W. BARTLETT

¹⁻⁵Original data for Tables A and B were obtained from the following sources: (1) Bureau of Agricultural Economics, U.S.D.A. Beginning with January, 1936, cash income to Illinois farmers includes the revised estimates of the Bureau; (2) Illinois Crop Reporting Service, Illinois State Department of Agriculture, and U. S. Department of Agriculture, cooperating; (3) Monthly data include an average of current month with eleven preceding months; (4) Federal Reserve Board; (5) National Industrial Conference Board. For explanations of computations, see Number 2, July, 1935.

TABLE A.—INDEXES OF BUSINESS CONDITIONS, SAME MONTH, 1921-1929 = 100

	Whole-sale prices of all commodities (U. S.) ¹	Farm prices		Cash income to Illinois farmers		Prices paid by farmers for commodities bought (U. S.) ¹	Purchasing power of income to Illinois farmers	Factory payrolls in the United States ⁴	Cost of living in the United States ⁵	Purchasing power of factory payrolls
		Illinois ²	United States ¹	Millions ¹	Indexes ¹					
1929.....	97	109	103	\$548.6	108	100	108	112	99	113
1930.....	88	95	89	459.7	91	96	95	91	96	95
1931.....	74	65	61	309.5	61	82	74	69	86	80
1932.....	66	44	46	228.7	45	71	63	48	77	62
1933.....	67	47	49	276.7	55	70	79	51	74	69
1934.....	76	64	64	312.7	62	80	77	64	78	82
1935.....	82	88	76	378.1	75	82	91	73	82	89
1936.....	82	91	80	453.1	90	81	111	85	84	101
1937.....	88	102	86	472.8	93	85	109	101	87	116
Mar., 1937...	89	107	91	40.1	94	86	109	102	87	117
Dec., 1937...	84	79	72	33.2	93	83	112	82	87	94
Jan., 1938...	81	79	71	37.8	93	83	112	77	86	90
Feb., 1938...	80	76	68	32.0	92	82	112	75	86	87
Mar., 1938...	80	77	68	...	...	82	...	...	...	...

TABLE B.—PRICES AND PRICE INDEXES OF ILLINOIS FARM PRODUCTS

Product	Prices					Indexes: same month 1921-1929 = 100		
	March average		Mar. 1937	Feb. 1938	Mar. 1938	Mar. 1937	Feb. 1938	Mar. 1938
	1910-14	1921-29						
Corn, bu.....	\$.54	\$.69	\$ 1.06	\$.47	\$.46	154	68	67
Oats, bu.....	.38	.42	.49	.28	.27	117	67	64
Wheat, bu.....	.94	1.32	1.29	.88	.81	98	66	61
Barley, bu.....	.65	.66	1.11	.70	.67	168	108	102
Hogs, cwt.....	7.64	9.71	9.70	8.10	8.90	100	89	92
Beef cattle, cwt.	5.82	7.67	8.10	6.90	7.10	106	94	93
Lambs, cwt.....	6.16	11.57	10.30	7.00	8.10	89	62	70
Milk cows, head	55.00	73.00	60.00	60.00	60.00	82	84	82
Veal calves, cwt.	7.32	10.70	9.10	9.20	8.90	85	86	83
Sheep, cwt.....	4.64	6.54	5.10	3.50	3.60	78	56	55
Horses, head...	154.00	89.00	115.00	96.00	93.00	129	110	104
Butterfat, lb.....	...	.42	.34	.28	.28	80	67	66
Milk, cwt.....	1.63	2.26	2.00	1.90	1.85	88	82	82
Eggs, doz.....	.19	.23	.19	.14	.15	86	46	65
Chickens, lb.....	.11	.21	.15	.16	.16	69	78	75
Wool, lb.....	.20	.32	.34	.25	.23	106	78	71
Apples, bu.....	1.22	1.94	1.80	.80	.85	93	43	44
Hay, ton.....	13.95	14.35	14.80	9.50	9.90	103	66	69
Potatoes, bu.....	.78	1.30	1.50	.75	.75	115	57	58
Illinois index of farm prices.....						107	76	77

¹—For sources of data in tables see previous page.

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ILLINOIS FARM ECONOMICS

Department of Agricultural Economics, College of Agriculture and Agricultural Experiment Station, in cooperation with the Extension Service in Agriculture and Home Economics, University of Illinois

Urbana

May, 1938

Number 36

CURRENT ECONOMIC DISCUSSIONS ON THE AIR

The following special Agricultural Economics broadcasts are a part of the programs in Agriculture and Home Economics which are broadcast regularly by the College of Agriculture. The Agricultural Programs are daily except Saturday at 12:30 to 1:00 P.M. The Home Economics Programs are Monday, Wednesday, and Friday, 10:02-10:15 A.M., Station W I L L, 580 Kilocycles.

June 3—"Rural School Reorganization"—D. E. LINDSTROM, E. H. REGNIER.

June 10—"Marketing Apples"—J. W. LLOYD, VICTOR EKSTROM.

June 17—"The Current Economic Situation as It Affects the Farmer"—E. J. WORKING, R. C. ROSS.

June 24—"Detailed Cost Studies"—R. H. WILCOX, G. E. TOBEN.

TRENDS IN USE OF POWER ON ACCOUNTING FARMS IN ILLINOIS

An analysis of records kept on Illinois farms from 1930 to 1936 in cooperation with the Department of Agricultural Economics, has brought out the following interesting facts on changes in the use of farm power: (1) farmers are using almost two less horses and mules per farm in 1938 than in 1926; (2) the percentage of horses over 20 years of age on farms is twice as high in 1938 as in 1926, but the proportion of horses under four years of age is also higher; (3) from 1930 to 1934 about 26 percent of the farms in central Illinois used horses only, whereas in 1936 the proportion had declined to 14 percent; and (4) the average expense per crop acre for man labor, horse, and machinery use was prac-

TABLE 1.—NUMBER OF HORSES AND MULES PER FARM, BY AGE GROUPS, ILLINOIS ACCOUNTING FARMS 1926, 1932, AND 1938

Age groups	Number of horses and mules per farm			Percentage distribution		
	1926	1932	1938	1926	1932	1938
Under 4 years	1.4	.7	1.2	17.5	12.5	24.0
4 to 7 years	1.9	1.2	1.0	24.0	19.8	19.1
8 to 11 years	2.2	1.4	1.0	28.2	22.8	19.2
12 to 15 years	1.4	1.4	.8	18.2	23.6	16.9
16 to 19 years	.6	.9	.6	7.9	15.0	12.5
20 and over	.3	.4	.4	4.2	6.3	8.3
Total	7.8	6.0	5.0	100.0	100.0	100.0

tically the same for horse farms, standard tractor farms, and general-purpose tractor farms for the years 1930-36.

The number of horses per farm and the percentage distribution by age groups for 1926, 1932 and 1938 are indicated in Table 1. In 1926, 17.5 percent of the horses were under four years of age, and 4.2 percent over 20 years of age; in 1932, those under four years had declined to 12.5 percent, while those over 20 had increased to 6.3 percent. In 1938, however, there were more younger horses.

The outlook information in this issue is based upon reports issued by the Bureau of Agricultural Economics, U.S.D.A.—R. C. ROSS, *Editor*.

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those under four years having increased to 24 percent, and those over 20 years to 8.3 percent. Over this eight-year period, there was a marked decline in all groups from 4 to 15 years of age—the period when farmers get the maximum work from their horses and mules. Numbers of horses and mules per farm have been steadily declining: 7.8 per farm in 1926, 6.0 in 1932, and 5 in 1938. There were more horses per farm over 16 years of age in 1938 than in 1926, but only half as many from 4 to 15 years. The shift in breeding operations on Illinois farms has been related to changes in prices of farm products and of horse feed. During the period 1930-1934, when the price of farm products dropped much more drastically than that of tractors, there was practically no shifting from horses to tractors on these central Illinois farms (Table 2), the percentage of

TABLE 2.—PERCENTAGE OF CENTRAL ILLINOIS ACCOUNTING FARMS WITH VARIOUS TYPES OF POWER, 1930-1936

Type of power	1930	1931	1932	1933	1934	1935	1936
Horse farms (horses only)	25.3%	26.1%	25.3%	25.3%	26.2%	20.2%	14.0%
Standard tractor farms	61.4	58.1	55.9	57.2	56.5	45.0	28.7
General-purpose tractor farms	13.3	15.8	18.8	17.2	17.3	34.8	57.3

TABLE 3.—MAN LABOR, HORSE, AND MACHINERY COST PER CROP ACRE, CENTRAL ILLINOIS ACCOUNTING FARMS, 1930-1936

Type of power	1930	1931	1932	1933	1934	1935	1936
Horse farms (horses only)	\$12.40	\$10.12	\$8.10	\$8.02	\$8.44	\$9.23	\$ 9.56
Standard tractor farms	13.40	10.46	8.69	8.86	9.43	9.89	10.64
General-purpose tractor farms	12.85	10.45	8.79	8.63	9.06	9.86	9.88

farms operated with horses only averaging about 26 percent each year. In 1935, however, this percentage dropped to 20, and in 1936 to 14 percent. During the period 1930-1934, however, there was a shift from standard tractors to general-purpose tractors, and this shift had an effect on numbers of horses since general-purpose tractors which are used for cultivating row crops replace more horses than do the standard type. In 1930, 61 percent of the accounting farms used

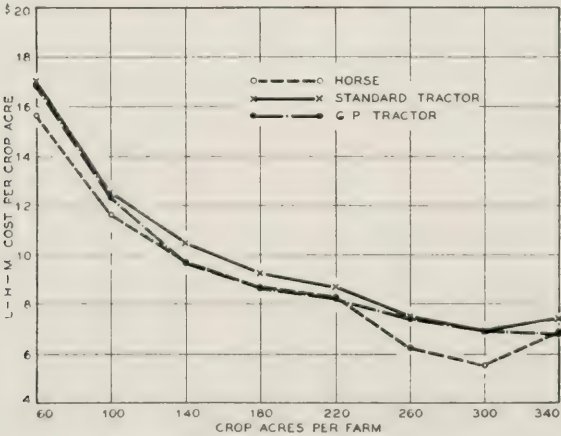


FIG 1.—INFLUENCE OF SIZE OF FARM AND TYPE OF POWER ON TOTAL MAN LABOR, HORSE AND MACHINERY COST PER CROP ACRE, CENTRAL ILLINOIS ACCOUNTING FARMS, 1934-1936

standard tractors and in 1936 only 29 percent. In 1930, 13 percent of these farms used general-purpose tractors and 57 percent in 1936.

Further evidence of the effect on horse numbers of changing from standard tractors to general-purpose tractors may be gathered from an analysis of farms having from 160 to 199 crop acres. In 1930, farms of this size using horses only, averaged 8 horses per farm; those using horses with standard tractors, 6 horses per farm; and those using horses and general-purpose tractors, 4.4 horses per farm. By 1936, horses had been reduced on horse farms to 7.3; on standard tractor farms to 5.3, and on general-purpose tractor farms, to 3.9. These facts help to explain the reduction in horse numbers during the period when there was practically no change in numbers of tractors. The average operating expense per crop acre for man labor, horse, and machinery use was practically the same for horse farms, standard tractor farms, and general-purpose tractor farms each year for the period 1930-1936 (Table 3 and Figure 1). Other studies seem to indicate that those farmers who continue to operate their farms with horses only are among the more efficient in the use of horse power. The records also indicate that the expense for man labor has been reduced only slightly by the addition of tractors. In some cases tractors have enabled the operators to do a larger volume of business, and in others to provide for more leisure on the part of farm workers.

P. E. JOHNSTON

COMBINE HARVESTER COSTS FOR 1937

During 1937, costs of combine harvesting and records of harvesting operations were obtained, either partially or completely, on 31 combine harvesters in Illinois. For 25 machines, representing 5 size groups which kept complete records, a total of 6635 acres of crops were harvested, of which 74 percent was soybeans, 13 percent wheat, 12 percent oats, and 1 percent other crops. The average acreage

TABLE 4.—AVERAGE ACREAGES OF VARIOUS CROPS HARVESTED WITH COMBINES, CENTRAL ILLINOIS, 1937

	Power-take-off			Motor-mounted	
	5-Foot	6-Foot	8-Foot	8-Foot	12-Foot
Wheat.....	23	34	18	23	59
Oats.....	35	19	14	57	22
Soybeans.....	127	79	144	225	315
Miscellaneous.....	5	3			
Total Acres.....	190	135	176	305	396
Average acreage per foot of cutter bar.....	38	23	22	38	33
Number of combines.....	9	2	2	5	7

TABLE 5.—AVERAGE COST PER ACRE OF HARVESTING WHEAT, OATS, AND SOYBEANS WITH COMBINES, CENTRAL ILLINOIS, 1937¹

	Power-take-off						Motor-mounted					
	5-Foot		6-Foot		8-Foot		8-Foot		10-Foot		12-Foot	
	Cost per acre	No. of cases	Cost per acre	No. of cases	Cost per acre	No. of cases	Cost per acre	No. of cases	Cost per acre	No. of cases	Cost per acre	No. of cases
Wheat.....	\$1.48	5	\$1.21	3	\$1.08	2	\$1.06	2	\$1.58	1	\$1.13	5
Oats.....	1.54	8	1.33	3	..	..	1.28	3	1.52	1	1.61	4
Soybeans.....	1.59	8	1.53	1	1.43	2	1.46	4	1.39	3	1.32	6
Number of combines.....	9		4		2		4		3		6	

¹The number of combines given in this table varies from that in Table 4 because some cooperators changed the size or type of their combines between the small grain and soybean harvest, and in some instances records were obtained on the acreages harvested, but sufficient data were not obtained to enable costs to be computed for the whole season.

harvested per foot of cutter bar ranged from 22 to 38 acres for the 5 size groups (Table 4).

The average costs per acre of harvesting wheat, oats, and soybeans in central Illinois during 1937 ranged from \$1.06 to \$1.58 for wheat, \$1.28 to \$1.61 for oats, and from \$1.32 to \$1.59 for soybeans. The foregoing table gives the average costs per acre for the three crops named above by types and sizes of combines (Table 5).

The average yearly costs of operating combine harvesters were computed for four size groups. For these four groups the variation was from \$249.15 per year for the 8-foot power-take-off group to \$523.14 for the 12-foot motor-mounted group (Table 6).

The cost items were calculated as follows: labor operating and repairing combines, 40 cents per hour; tractor operators, 30 cents per hour; and other labor,

TABLE 6.—AVERAGE COSTS OF OPERATING COMBINES, CENTRAL ILLINOIS, 1937

	Power-take-off		Motor-mounted	
	5 ft.	8 ft.	8 ft.	12 ft.
Labor:				
Operating combine.....	\$66.14	\$48.80	\$67.10	\$73.90
Operating tractor.....	7.97	2.40	41.25	51.00
Chores on tractor.....	9.54	8.00	15.10	11.20
Other labor.....	3.78	.....	.....	.26
Total labor.....	\$87.43	\$59.20	\$123.45	\$136.36
Other variable costs:				
Tractor use (except fuel).....	\$40.59	\$36.60	\$43.66	\$50.06
Tractor fuel.....	36.59	38.20	32.06	38.90
Tractor motor oil.....	3.79	2.72	4.16	4.16
Combine motor fuel.....	.....	.....	20.17	39.55
Combine motor oil.....	.....	.....	2.84	3.21
Grease.....	2.71	4.63	4.79	6.39
Repairs.....	33.95	19.96	8.10	45.70
Total other variable costs.....	\$117.63	\$102.11	\$115.78	\$187.97
Fixed costs:				
Depreciation.....	\$64.66	\$54.56	\$77.72	\$145.03
Interest.....	24.78	28.28	38.11	48.78
Shelter.....	5.00	5.00	5.00	5.00
Total fixed costs.....	\$94.44	\$87.84	\$120.83	\$198.81
Total cost of operation.....	\$299.50	\$249.15	\$360.06	\$523.14
Average acres cut.....	190	176	268	414
Number of combines.....	9	2	4	6

20 cents per hour. Use of tractors (without fuel or oil) was charged at 30 cents per hour for three-plow tractors, and 23 cents per hour for two-plow tractors. Tractor and combine motor fuel, oil, and grease, and combine repairs were charged at cost. Depreciation was calculated on an acre basis from previous and current records, and varied from 29 to 35 cents per acre. Interest was on the basis of 6 percent of the average valuation and shelter on the basis of a flat rate of \$5.00 for each machine.

R. C. ROSS and B. R. HURT

PROSPECTS FOR FARM INCOME

Farmers will do well to prepare as best they can for a long period of depression. Of course no well informed person believes that he can accurately forecast the course of the depression, and any sort of forecast whatever is highly hazardous in view of present uncertainties. Nevertheless, recent developments have increased the likelihood that the current depression will be prolonged, and this possibility needs to be faced and prepared for.

The upper section of Figure 2 shows the Cleveland Trust Company's index of business activity expressed as percentage deviations from normal. An examination of this section of the chart will show that altho there have been many fluctuations in business activity, above and below the so-called "normal level," the nature of depressions has been very different at different times. The period from 1873 to 1900 was one of prolonged depressions, whereas from 1850 to 1873 and again from 1900 to 1920 such depressions as occurred were relatively short-lived.

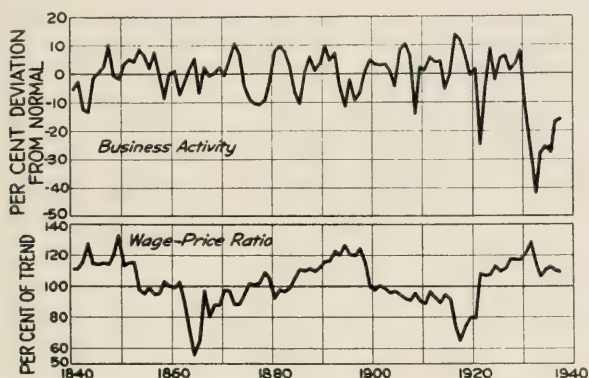


FIG. 2.—BUSINESS ACTIVITY (CLEVELAND TRUST COMPANY INDEX) AND INDUSTRIAL WAGE-PRICE RATIO (RATIO OF B.L.S. WAGE INDEX TO INDEX OF WHOLESALE PRICES OF ALL COMMODITIES OTHER THAN FARM PRODUCTS AND FOODS)

The lower section of Figure 2 shows the ratio between hourly wage rates of industrial workers and wholesale prices of industrial products expressed as a percentage of trend. This part of the chart indicates that after account is taken of the marked upward trend in wages relative to prices, wage rates were high relative to commodity prices from about 1840 to 1852. They then began to decline, and reached a low point in 1864 and thereafter moved upward fairly consistently until about 1895. There was a sharp decline from 1897 to 1899, followed by a slow one which continued until 1915 when the influence of war-time price inflation caused wages to lose ground relative to prices of industrial products. After 1917 wages rose more rapidly than did commodity prices and finally when commodity prices began to fall in 1920 wage rates again became very high relative to the level of prices of industrial products.

It will be noted, consequently, that those periods of years when we have had prolonged depressions have been, generally speaking, years when wages were rising relative to commodity prices, or else were at very high levels relative to commodity prices. In periods when wage rates have not been abnormally high relative to commodity prices, on the other hand, depressions have been short-lived.

The changes in the wage-price ratio, of course, have not been due primarily to changes in wages. Thus in the period from 1870 to 1895 there was little change in wage rates but prices of industrial products were declining rapidly. Again from 1899 to 1915 there was a slight decline (trend considered) in the wage-price ratio, but wage rates were actually rising and indeed, rising a trifle more rapidly than prices but not as much more rapidly as the normal trend. The movements of the wage rates and the price indexes are shown separately in Figure 3.

Agricultural economists and many farmers are familiar with the fact that

agricultural prices in general are more flexible than are prices of non-agricultural products. As a result, if a decline in foreign demand reduces farm income (through a reduction in prices of farm products if there is no change in production) it is impossible for farmers to buy as many industrial products at the relatively fixed prices of such products as formerly. Some industries then reduce production and lay off workers and such a situation may be the start of a business depression.

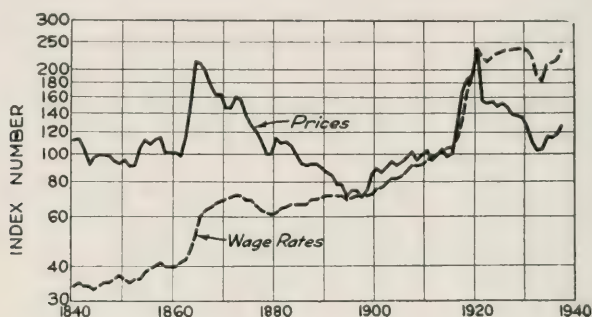


FIG. 3.—INDUSTRIAL WAGE RATES AND INDUSTRIAL PRICES, 1840 TO DATE (1910-14 = 100)

There is a similar relationship between prices of many industrial products and the average level of hourly wage rates. While some industrial wage rates are fairly flexible and the prices of some industrial products, such as agricultural implements and nickel are extremely inflexible, industrial wage rates, in general, are even less flexible than are the prices of industrial products. Consequently, if forces come into operation which lower average prices of industrial products, wage rates lag behind them and this tends to make the production of many industrial products unprofitable and to cause disparity between prices of various industrial products as well as between those of industrial and agricultural products.

The wage-price ratio is complicated by another situation. When wages rise relative to commodity prices, this tends to encourage the use of labor-saving machinery. This tendency is observable in farms and factories alike. If wages of farm labor are high it pays farmers to conserve labor by using more machinery. But the increase in the use of labor-saving machinery may not immediately result in a decline in the demand for labor. If more labor-saving machinery and equipment is to be used it must first be produced, and can be produced only with the aid of labor. Consequently, the very fact that wage rates may be raised to an artificially high level relative to prices of industrial products may temporarily increase the demand for labor because more labor is required to build more labor-saving devices. This effect explains why abnormally high wage rates may be accompanied by a high level of industrial activity over a considerable period of time, as was the case from about 1922 to 1929. However, after the production of labor-saving machinery, factories, and other equipment has proceeded for a time, the industries which have been occupied in making such things will experience a falling-off of demand and reduce their production, laying off workers and causing unemployment.

It is probable that the high and rising level of wage rates relative to prices of industrial products from 1917 to 1929 was as important a factor in bringing on

the depression of the early 30's as was the decline in the foreign demand for agricultural products, which was important during the latter part of the 20's. It was probably even more important in causing the depression to be a long one.

The depreciation of the value of the dollar in foreign exchange, which took place during 1933, tended to correct the wage-price disparity, in spite of the influence of the N.R.A. Dollar depreciation was also a prime factor in reducing the disparity between prices of agricultural and industrial products and in large measure laid the foundations for the recovery which began in 1933.

Under the influence of an aggressive labor policy in subsequent years, however, hourly wages have increased more rapidly than prices of industrial products. Largely because of higher wage rates and partly because of recent "social security" taxes which increase the cost of labor to employers, prices of industrial products rose rapidly in comparison with farm purchasing power about the beginning of 1937. To a large extent it is these things which seem to be responsible for our current depression.

The resumption of large-scale government spending, which was announced about a month ago, gave some promise of a stimulus to business activity which might initiate a recovery, provided fundamental readjustments in the wage and price structure were not too much delayed or prevented by it. More recently, however, news reports indicate a strong likelihood that the wage-hour bill will be passed by Congress, and become a law. If this should happen, and if its effect is actually to raise materially the average level of wages or to prevent a readjustment of wages relative to prices, it will increase the likelihood that the current depression will be a prolonged one or—if there is first an upswing in business activity as a result of pump priming—that we will later have a renewed period of severe depression.

There are, of course, various possibilities that price raising measures may be taken which will tend to counteract the present disparity between prices and wage rates. Chief among the things that might be done would be a further depreciation of the dollar in terms of gold and relative to the currencies of other countries. The longer the period that elapses without definite progress toward revival of industry, the more likely it is that such further depreciation of the dollar, regrettable as it may be from some standpoints, will be turned to by the government as the easiest way out of a bad situation.

Many people have been laboring under the delusion that a serious decline in farm income is impossible with our present methods of restricting agricultural production. This, however, is not so. While the restriction of production can have a very important effect upon prices, its effect on income is very limited because there is less to sell at the higher price. Obviously, if farmers' sales were reduced to nothing, there would be no income from sales even though prices went to abnormally high levels. Judging from past relationships between farm income and production, even if agricultural production were reduced so much as to put the country virtually on a famine basis, farm income would remain very low if business were severely depressed. Farmers consequently have as vital an interest in improving the level of business activity as do those who are more directly connected with industry.

E. J. WORKING

¹Original data for Tables A and B were obtained from the following sources: (1) Bureau of Agricultural Economics, U.S.D.A. Beginning with January, 1936, cash income to Illinois farmers includes the revised estimates of the Bureau; (2) Illinois Crop Reporting Service, Illinois State Department of Agriculture, and U. S. Department of Agriculture, cooperating; (3) Monthly data include an average of current month with eleven preceding months; (4) Federal Reserve Board; (5) National Industrial Conference Board. For explanations of computations, see Number 2, July, 1935.

TABLE A.—INDEXES OF BUSINESS CONDITIONS, SAME MONTH 1921-1929 = 100

	Whole-sale prices of all commodities (U. S.) ¹	Farm prices		Cash income to Illinois farmers		Prices paid by farmers for commodities bought (U. S.) ¹	Purchasing power of income to Illinois farmers	Factory payrolls in the United States ⁴	Cost of living in the United States ⁴	Purchasing power of factory payrolls
		Illinois ³	United States ¹	Millions ¹	Indexes ³					
1929.....	97	109	103	\$548.6	108	100	108	112	99	113
1930.....	88	95	89	459.7	91	96	95	91	96	95
1931.....	74	65	61	309.5	61	82	74	69	86	80
1932.....	66	44	46	228.7	45	71	63	48	77	62
1933.....	67	47	49	276.7	55	70	79	51	74	69
1934.....	76	64	64	312.7	62	80	77	64	78	82
1935.....	82	88	76	378.1	75	82	91	73	82	89
1936.....	82	91	80	453.1	90	81	111	85	84	101
1937.....	88	102	86	472.8	93	85	109	101	87	116
April, 1937....	90	114	93	41.9	93	87	109	107	88	122
Jan., 1938.....	81	79	71	37.8	93	83	112	77	86	90
Feb., 1938.....	80	76	68	32.0	92	82	112	75	86	87
Mar., 1938.....	80	77	68	33.0	91	82	111	74	86	86
April, 1938....	80	77	67	.....	..	82	...	...	86	...

TABLE B.—PRICES AND PRICE INDEXES OF ILLINOIS FARM PRODUCTS

Product	Prices					Indexes: same month 1921-1929 = 100		
	April average		Apr. 1937	Mar. 1938	Apr. 1938	Apr. 1937	Mar. 1938	Apr. 1938
	1910-14	1921-29						
Corn, bu.....	\$.56	\$.70	\$ 1.26	\$.46	\$.48	180	67	69
Oats, bu.....	.38	.42	.52	.27	.26	124	64	62
Wheat, bu.....	.94	1.26	1.33	.81	.76	106	61	60
Barley, bu.....	.66	.66	1.00	.67	.63	152	102	96
Hogs, cwt.....	7.88	9.42	9.50	8.90	8.10	101	92	86
Beef cattle, cwt.	5.98	7.66	8.30	7.10	7.40	108	93	97
Lambs, cwt.....	6.30	11.57	10.10	8.10	7.80	87	70	67
Milk cows, head	54.00	71.00	60.00	60.00	60.00	84	82	84
Veal calves, cwt.	7.02	9.91	8.70	8.90	8.70	88	83	88
Sheep, cwt.....	4.84	6.70	4.70	3.60	3.50	70	55	52
Horses, head....	156.00	89.00	111.00	93.00	95.00	125	104	107
Butterfat, lb....	.....	.41	.31	.28	.25	76	66	61
Milk, cwt.....	1.40	2.19	1.85	1.85	1.80	84	82	82
Eggs, doz.....	.16	.22	.20	.15	.14	91	65	66
Chickens, lb....	.12	.22	.15	.16	.17	70	75	76
Wool, lb.....	.19	.32	.35	.23	.17	110	71	54
Apples, bu.....	1.39	2.08	1.85	.85	.95	89	44	46
Hay, ton.....	14.20	14.21	16.20	9.90	8.90	114	69	63
Potatoes, bu....	.80	1.35	1.50	.75	.75	111	58	56
Illinois index of farm prices.	114	77	77

¹⁻⁵For sources of data in tables see previous page.

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ILLINOIS FARM ECONOMICS

Department of Agricultural Economics, College of Agriculture and Agricultural Experiment Station, in cooperation with the Extension Service in Agriculture and Home Economics, University of Illinois

Urbana

June, 1938

Number 37

CURRENT ECONOMIC DISCUSSIONS ON THE AIR

The following special Agricultural Economics broadcasts are a part of the programs in Agriculture and Home Economics which are broadcast regularly by the College of Agriculture. The Agricultural Programs are daily except Saturday at 12:30 to 1:00 P.M. The Home Economics Programs are Monday, Wednesday, and Friday, 10:02-10:15 A.M., Station W I L L, 580 Kilocycles.

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July 29—"Marketing Grain—Wheat"—L. J. NORTON, L. H. SIMERL.

THE BUSINESS SITUATION

The sharp decline in business activity which characterized the last quarter of 1937 flattened out during the early part of 1938, and in recent months has been declining at a slower rate. The Federal Reserve index of the volume of business activity declined from 117 in August, 1937, to 84 in December, or an average of 8 points per month. Since December this index has declined to 77 in April and to an estimated index of 75 in May, or an average of slightly less than 2 points a month. This decline in business activity has resulted in a decrease in industrial pay rolls, and increases in unemployment, relief expenditures, and the national debt. The estimated index of 75 for May, 1938, compares with 60 for May, 1932, when business activity in this country was about at the lowest.

The Cleveland Trust Company Bulletin of February, 1938, pointed out that only three previous declines in the past 100 years have been comparable to the present one in rapidity and severity. These were in 1893, 1907, and 1920. In the composite index of the three earlier abrupt depressions, the rapid drop was completed in the first four months after which an uneven depression floor stretched out for nine more months. After that a gradual recovery got under way which made net gains averaging about one and one-half points a month.

Some factors in our present situation indicate that recovery from the present business depression will be slower than in the three noted. In the early part of the present depression business activity declined much more rapidly than in the three earlier depressions. More than twice as many people are unemployed now than during the 1920-1922 depression. High labor and material costs discourage expansion of some industries, such as the building industry.

Other factors are favorable to recovery. Banks are in a strong position, in sharp contrast to 1921, and particularly to 1932. The automobile industry which

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led the way out of the 1920-1922 depression, and was an influential factor in the business recovery from 1933 to 1937, has commenced an aggressive campaign to sell more cars. This may result later in an increased output. Renewed business activity in the manufacture of many lines of consumers' goods to replace decreased inventories is likely. Under present prices for farm products farmers are continuing to buy goods and services and are thus helping to support business activity. As governmental expenditures for relief and recovery increase, increased business activity will result.

R. W. BARTLETT

WHEAT PROSPECTS FOR 1938

The June report of the Federal Crop Reporting Board stated that June 1 conditions indicated a total winter wheat crop of 761 million bushels. Since June 1, however, there has been evidence of damage from both late spring frosts and rust. The frost and rust damage is resulting in much light weight, poor quality wheat as well as reduction in the total yield. While adequate information is not now available, recent reports, if confirmed by later developments, would suggest that the winter wheat crop might turn out to be as much as 100 million bushels short of the June 1 indications.

If we allow 660 million bushels for winter wheat and 270 million for spring (the June government report indicated from 260 to 285 million) we arrive at a total of 930 million bushels.

The carryover of old wheat is apparently about 200 million bushels, so that present prospects indicate a total supply of well over 1,100 million bushels. Since normal domestic consumption is only about 650 million bushels, this would indicate a "surplus" of between 450 and 500 million bushels available for export and carryover into another year.

The United States' yearly consumption of wheat in the past ten years has averaged approximately 680 million bushels, instead of the 650 figure given above as "normal" consumption. The difference of 30 million bushels is due to the unusually heavy feeding of wheat in the years when prices were extremely low and in the years of short corn crops. Yearly figures for consumption and net exports are as follows:

Crop year beginning July 1	Domestic consumption (million bu.)	Net exports and shipments (million bu.)	Crop year beginning July 1	Domestic consumption (million bu.)	Net exports and shipments (million bu.)
1928-29.....	654	144	1933-34.....	627	28
1929-30.....	619	143	1934-35.....	655	13
1930-31.....	747	115	1935-36.....	659	7
1931-32.....	754	126	1936-37.....	700	12
1932-33.....	720	35	1937-38.....	670	95*

*Estimated, season not yet complete.

From this table it is evident that it is difficult to judge what constitutes normal exports of wheat. In the ten years 1928-29 to 1937-38, exports averaged 72 million bushels and in the preceding ten years 215 million. If exports during the coming crop year should be no more than in the past year, there would be left a remainder for carryover into another year about equal to the largest carryover we have ever had—375 million bushels, which was the amount carried over from the 1931 crop. The average farm price of 1931 crop wheat in Illinois was 40 cents per bushel, and the price of No. 2 Hard Winter at Chicago for the same crop year averaged 53 cents.

The outlook for wheat prices, however, is not quite as bad as the foregoing comparison of supplies and prices might suggest. Heavy feeding of wheat will reduce the surplus if prices are low. Furthermore, once the United States is on an export basis, wheat prices depend more upon world market conditions than

upon purely domestic supply and demand. In the United States the domestic demand situation is very bad, as indicated by the fact that industrial production per capita is now at about the same level as in the fall of 1931. In foreign countries, however, there has been relatively little decline in business activity.

Indexes of industrial production for the United States, as compiled by the Federal Reserve Board, and for the world excluding the United States, as compiled by the Bureau of Agricultural Economics are as follows:

INDEXES OF INDUSTRIAL PRODUCTION

(1923-1925 = 100, seasonally adjusted)

	United States	Foreign countries		United States	Foreign countries
<i>1937</i>			<i>1937</i>		
January.....	114	138	October.....	102	148
February.....	116	141	November.....	88	149
March.....	118	143	December.....	84	146
April.....	118	145			
May.....	118	147	<i>1938</i>		
June.....	114	146	January.....	80	141
July.....	114	141	February.....	79	141
August.....	117	142	March.....	79	(140)*
September.....	111	147	April.....	78	...

*Estimated from *Annalist* Index of Industrial Production for the World, excluding the United States.

The way in which foreign industrial production has been maintained indicates that there has thus far been very little decline in the general level of demand in foreign countries.

The demand for wheat from the United States, of course, will depend not only upon the general level of demand in foreign countries, but also upon the supplies of wheat, and to a lesser extent the production of other food stuffs abroad. It is still too early to arrive at any accurate judgment as to the size of the 1938 wheat crop of foreign countries. Present prospects, however, indicate that the European crop (excluding Russia) will be little different from 1937. Since wheat stocks in foreign countries are considerably smaller than they were a year ago, it seems probable that there may be a better import demand for wheat in 1938-39 than in the past year.

On June 16 wheat was selling at Liverpool for approximately 97 cents per bushel, compared with an average of about 62 cents for June, 1931. The British price level was lower in 1931 than now and in terms of the present-day level of prices wheat was worth about 80 cents per bushel in June, 1931. The difference reflects the better foreign demand prevailing now and also the smaller world carryover of wheat. This year the carryover from the old crop is about 625 million bushels, compared with 1,000 million bushels in 1931.

Small supplies of old-crop wheat in other exporting countries will probably result in a favorable opportunity for United States exports during the next three months. The possibility of important United States exports later in the year will depend largely upon the size of the Canadian crop—and still later upon the Argentine and Australian crops.

The course of world prices from now until the middle of July will probably depend largely upon the out-turn of the winter wheat crop in the United States. As the season advances, however, prospects for spring wheat in the United States and Canada will assume a larger importance.

If spring wheat yields in the United States and Canada should be about equal or better than average, the prospect for a good export demand for United States wheat in the next two or three months suggests that early marketing of winter wheat may be more advisable than holding. However, prices in the United States may depend largely upon what loan value is set for wheat or upon other government measures.

E. J. WORKING

ILLINOIS FARM EARNINGS DECLINE IN 1937

Farm earnings on Illinois accounting farms were less in 1937 than in 1936, but were equal to those for 1934 and 1935. The average net income an acre (net cash income less the value of unpaid labor) was \$5.33 in 1937, \$7.40 in 1936, \$5.14 in 1935, \$5.40 in 1934, and \$1.47 in 1932 which was the lowest average for any year since 1926 (Fig. 1). The accounting farms averaged 227 acres a farm in both 1936 and 1937.

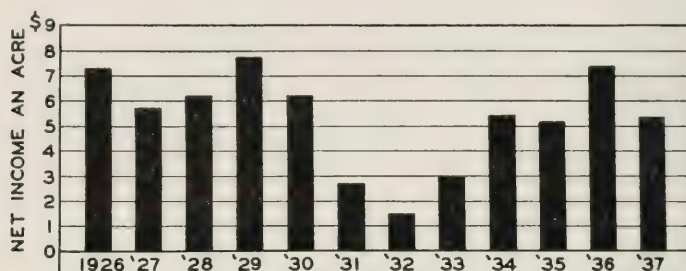


FIG. 1.—NET CASH INCOME AN ACRE, (UNPAID LABOR DEDUCTED), ILLINOIS ACCOUNTING FARMS, 1926-1937

Farm earnings were lower on a cash basis in 1937 than on an inventory basis since there was an average increase in inventory of \$727 a farm, or \$3.20 an acre. The inventory increases for the year, by items, were as follows: livestock \$96, feed and grains \$279, machinery \$275, and improvements \$77. More livestock were inventoried at the end of 1937 than at the beginning since the average Illinois farm price of meat animals was 17 percent less on January 1, 1938 than on January 1, 1937. The increased inventory of machinery and improvements indicates that purchases for the year were in excess of depreciation. The larger inventory of feed and grains, in spite of a decline of 47 percent in the Illinois farm price of grains, is explained by the increase in the quantity of grains on farms. The average accounting farm had on hand January 1, 1937, 903 bushels of corn and 419 bushels of oats as contrasted with 2524 bushels of corn and 715 bushels of oats on January 1, 1938.

The weighted average yield of corn, oats, wheat, soybeans, and hay for Illinois was 18 percent larger in 1937 than for the ten year period 1924-1933. Corn and oats yields last year were the highest in the 72 years for which crop records are available.

The gross cash income for 1937 averaged \$5309 a farm, or only \$65 less than for 1936. Cash farm business expenditures, on the other hand, averaged \$390 a farm larger. The average cash balance, which is the sum available for family living expenditures and for interest payments, was \$1885 in 1937 and \$2340 in 1936. The 1937 cash balance for the various type of farming areas was as follows:

Area 1.....	\$2224	Area 4.....	\$2355	Area 7.....	\$ 909
Area 2.....	2197	Area 5.....	1917	Area 8.....	1494
Area 3.....	2155	Area 6.....	1414	Area 9.....	981

The increase in expenditures may be explained in part by the fact that prices paid by farmers as reported by the Bureau of Agricultural Economics, averaged 5 percent higher in 1937 than in 1936. Total cash expenditures of Illinois accounting farmers, however, averaged 13 percent larger. The percentage increases of 1937 expenditures over those of 1936 were: improvements 29 percent, machinery

14 percent, feed 7 percent, crop expense 35 percent, hired labor 17 percent, taxes 1 percent, and miscellaneous 7 percent. Since 1934 farmers have been repairing buildings and buying new machinery to compensate for the lack of expenditures during the period 1931-33 when farm incomes were exceedingly low and expenditures were reduced to the minimum.

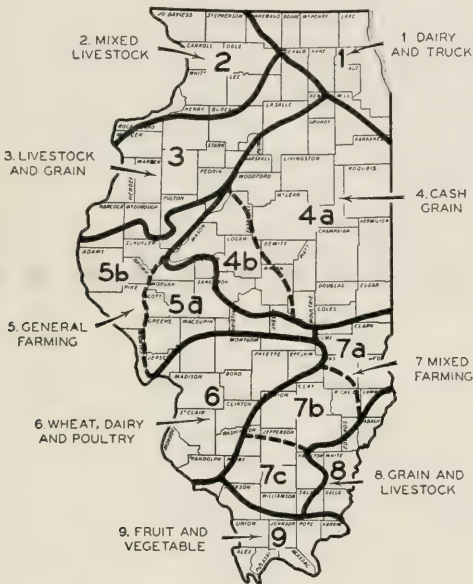


FIG. 2.—TYPE-OF-FARMING AREAS IN ILLINOIS

The 1937 net cash income an acre was much higher in some farming-type areas than in others, ranging from \$1.28 in Area 7 to \$7.76 in Area 1 (Table 1). The decline in earnings from 1936 to 1937 was less than 3 percent for Areas 1 and 6, but was 33 percent for Area 3, 37 percent for Area 4, and 53 percent for Area 7.

TABLE 1.—NET CASH INCOME AN ACRE, ILLINOIS ACCOUNTING FARMS, BY FARMING-TYPE AREAS FOR THE PERIODS 1925-29, 1930-34, AND FOR 1935, 1936, AND 1937
PROSPECTIVE CORN ACREAGES AND YIELDS FOR 1938

Farming-type areas		1925-29	1930-34	1935	1936	1937
Area 1	Chicago Dairy Area.....	\$9.59	\$5.25	\$3.32	\$7.95	\$7.76
Area 2	Northwestern Mixed Livestock.....	7.94	4.92	7.62	9.31	7.30
Area 3	Western Livestock and Grain.....	9.05	4.86	6.00	9.11	6.12
Area 4	East Central Cash Grain.....	8.91	4.46	5.83	9.88	6.26
Area 5	West Central General Farming.....	6.35	3.23	4.23	4.98	4.72
Area 6	St. Louis Dairy and Wheat Area.....	3.26	2.03	3.37	3.39	3.29
Area 7	South Central Mixed Farming.....	2.21	.91	2.97	2.73	1.28
Area 8	Wabash Valley Grain and Livestock.....	4.57	1.73	4.46	4.41	4.11
State average (weighted by acres in area)....		7.13	3.74	5.14	7.40	5.33

The small decline in income in the Chicago and St. Louis Dairy Areas was due largely to the increased price of dairy products in 1937. Crop yields in the Chicago Area were low in 1937 relative to other parts of the state, but yields in the St. Louis Area were high. The small decline in income for Area 5 may be credited largely to crop yields which were very low in 1936 but much above normal in 1937.

P. E. JOHNSTON

THE 1938 CORN ACREAGE ALLOTMENTS

Many people in Illinois were surprised at the degree of reduction called for by the corn acreage allotments for 1938, and have been at a loss to understand why it is so great. For Illinois, the area allotted amounts to 7,348,000 acres compared with 9,451,000 planted in 1937, and with intentions to plant which indicated 9,167,000 acres for 1938. The allotments consequently called for a reduction of 1,819,000 acres or 19.7 percent compared with the intended acreage for this year.

One of the reasons why some people thought so drastic a reduction not necessary this year was that the intentions indicated a total acreage for the United States of 94,595,000 acres whereas the national goal announced for the 1938 Agricultural Conservation program was 94,000,000 to 97,000,000 acres. Since the acreage indicated by intentions was well within the range of the announced goal, it seemed that little or no reduction from the intended acreage should be required.

It must be remembered, however, that the ultimate goal of the program is to control supplies. Hence, production needs to be considered as a goal rather than an acreage. In accordance with the new law the "reserve supply level," that is, the supply of corn at which the program aims, was placed at 2,640 million bushels. This is 10 percent more than the combined "normal" consumption plus "normal" exports of 2,400 million bushels. The carryover from the 1937 crop has been variously estimated at from 350 to 400 million bushels. In the opinion of the writer, the larger figure is likely to be more nearly right than the former. If it is subtracted from the reserve supply level, the remainder is 2,240 million bushels—the size of crop at which the Conservation Program might aim.

The intended corn acreage for 1938 is so concentrated in the more fertile regions that average yields on that acreage would produce a crop considerably in excess of 2,240 million bushels. Detailed figures for seven states and the United States total are shown in the following table.

PROSPECTIVE CORN ACREAGES AND YIELDS FOR 1938

State	Average yields per acre harvested 1923-1932	Acreage indicated to be planted by intentions 1938	Resulting crop with average yields ¹
	<i>bu.</i>	<i>1,000 acres</i>	<i>1,000 bushels</i>
Iowa.....	37.8	10,853	410,243
Illinois.....	36.0	9,167	330,012
Nebraska.....	24.0	8,343	200,232
Minnesota.....	31.2	4,740	147,888
Indiana.....	34.6	4,471	154,697
Missouri.....	25.0	4,303	107,575
Ohio.....	36.6	3,682	134,761
All other states.....	.....	49,036	933,124
U. S. total.....	.....	94,595	2,418,532

¹Assuming average yields per acre harvested during the period 1923-1932. Figures for all other states are calculated separately state by state.

The crop of 2,419 million bushels, which would be obtained from average yields in each of the states on the acreage indicated by intentions, would be 179 million bushels or 8 percent in excess of the production goal calculated above.

This indicates, consequently, that there is need for some reduction in acreage below that indicated by intentions, but with only an 8 percent decrease required for the country as a whole why should there be a 19.7 percent decrease called for by the Illinois allotments? Part of the reason is that corn allotments are being made only in the "commercial corn area" which includes a little less than one-half of the total corn acreage of the country. Farmers in the commercial corn area are being called upon to make the entire reduction necessary to bring production down to the goal. Furthermore the allotments appear to have been made on the assumption that there would be a good deal less than full compliance.

This is not the entire explanation, however. Although a very large reduction from intended acreage is called for by the Illinois allotments, there are other portions of the commercial corn area where it appears that no reduction is asked for from the acreage intended. This results from the fact that in many states, there has been a marked reduction in corn acreages in recent years. The principal decreases have occurred in states which are less well adapted to the growing of corn than are Illinois and Iowa. Among the states which have had outstanding decreases in acreage from 1932 to 1937 are Kansas, Missouri, and Nebraska.

The following table compares the ten-year average acreage with acreage intentions for 1938, and the 1938 allotted areas in six important corn-belt states:

CORN ACREAGES IN SELECTED CORN-BELT STATES

	Planted 10-year average 1928-1937	Planted ¹ 1937	Indicated by intention ¹ 1938	Allotment 1938
Illinois.....	9,034	9,451	9,167	7,348
Iowa.....	11,017	11,189	10,853	9,249
Indiana:				
Commercial area.....	4,181	4,410	(4,189)	3,456
Non-commercial area.....	281	296	(296)	.....
Total.....	4,462	4,706	4,471	.....
Missouri:				
Commercial area.....	4,190	3,202	(3,234)	3,267
Non-commercial area.....	1,385	1,058	(1,069)	.....
Total.....	5,575	4,260	4,303	.....
Kansas:				
Commercial area.....	2,896	(1,416)	(1,275)	2,109
Non-commercial area.....	3,228	(1,579)	(1,421)	.....
Total.....	6,124	2,995	2,696	.....
Nebraska:				
Commercial area.....	8,026	7,460	(7,087)	6,757
Non-commercial area.....	1,422	1,322	(1,256)	.....
Total.....	9,448	8,782	8,343	.....

¹Figures in parentheses are only rough approximations based on a distribution of the total acreages for 1937 and 1938 in the same proportion as acreages were distributed between the commercial and non-commercial areas in the ten-year period.

For Illinois and Iowa only one set of figures is given whereas for the other four states the entire state acreage is divided into two parts, the commercial and the non-commercial corn growing areas. This is because all of Illinois and Iowa are included in the commercial area. There are no acreage allotments for the non-commercial areas. The figures given in parentheses under 1937 acreage and 1938 intentions are only rough approximations. The Bureau of Agricultural Economics reports on the acreages indicated by intentions give only state totals and the allocation between the commercial and non-commercial areas for the four states Missouri, Kansas, Nebraska, and Indiana is made on the assumption that the acreage indicated by intentions for 1938 is distributed between these areas in the same proportion as was the ten-year average acreage.

The 1938 allotments for each state are below the ten-year average by approximately the same percentage, but they comprise a very different percentage of the 1937 acreage and of the intended acreage for 1938. This difference is of course due to the decreases which had previously been made in acreage of the western states. The allotments for the commercial area of Missouri and Nebraska are just about equal to the area planted in 1937 and to the area indicated by 1938 intentions. In Kansas the area allotted in the commercial region is far above the approximate area planted in 1937 and the area indicated by intentions for 1938. In Illinois, Iowa, and Indiana, on the other hand, the 1938 allotments are far below the 1937 area planted and the area indicated by the 1938 intentions.

E. J. WORKING

¹⁻⁵Original data for Tables A and B were obtained from the following sources: (1) Bureau of Agricultural Economics, U.S.D.A. Beginning with January, 1936, cash income to Illinois farmers includes the revised estimates of the Bureau; (2) Illinois Crop Reporting Service, Illinois State Department of Agriculture, and U. S. Department of Agriculture, cooperating; (3) Monthly data include an average of current month with eleven preceding months; (4) Federal Reserve Board; (5) National Industrial Conference Board. For explanations of computations, see Number 2, July, 1935.

TABLE A.—INDEXES OF BUSINESS CONDITIONS, SAME MONTH 1921-1929 = 100

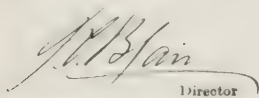
	Whole-sale prices of all commodities (U. S.) ¹	Farm prices		Cash income to Illinois farmers		Prices paid by farmers for commodities bought (U. S.) ¹	Purchasing power of income to Illinois farmers	Factory payrolls in the United States ⁴	Cost of living in the United States ⁵	Purchasing power of factory payrolls
		Illinois ²	United States ¹	Millions ¹	Indexes ³					
1929.....	97	109	103	\$548.6	108	100	108	112	99	113
1930.....	88	95	89	459.7	91	96	95	91	96	95
1931.....	74	65	61	309.5	61	82	74	69	86	80
1932.....	66	44	46	228.7	45	71	63	48	77	62
1933.....	67	47	49	276.7	55	70	79	51	74	69
1934.....	76	64	64	312.7	62	80	77	64	78	82
1935.....	82	88	76	378.1	75	82	91	73	82	89
1936.....	82	91	80	453.1	90	81	111	85	84	101
1937.....	88	102	86	472.8	93	85	109	101	87	116
May, 1937...	90	112	92	37.8	95	87	109	107	88	122
Jan., 1938....	81	79	71	37.8	93	83	112	77	86	90
Feb., 1938....	80	76	68	32.0	92	82	112	75	86	87
Mar., 1938....	80	77	68	33.0	91	82	111	74	86	86
Apr., 1938....	80	76	67	38.4	90	82	110	72	86	84
May, 1938....	80	74	66	....	..	82	....	....	....	....

TABLE B.—PRICES AND PRICE INDEXES OF ILLINOIS FARM PRODUCTS

Product	Prices					Indexes: same month 1921-1929 = 100		
	May average		May 1937	April 1938	May 1938	May 1937	April 1938	May 1938
	1910-14	1921-29						
Corn, bu.....	\$.59	\$.74	\$ 1.24	\$.48	\$.49	168	69	60
Oats, bu.....	.39	.42	.50	.26	.25	119	62	60
Wheat, bu.....	.94	1.29	1.20	.76	.72	93	60	56
Barley, bu.....	.65	.67	1.01	.63	.61	151	96	91
Hogs, cwt.....	7.42	9.30	9.90	8.10	7.70	106	86	83
Beef cattle, cwt.	6.02	7.90	8.70	7.40	7.40	110	97	94
Lambs, cwt.....	6.28	11.83	10.30	7.80	7.60	87	67	64
Milk cows, head	54.00	72.00	60.00	60.00	59.00	83	84	82
Veal calves, cwt.	6.86	9.79	8.70	8.70	8.30	89	88	85
Sheep, cwt.....	4.72	6.38	4.40	3.50	3.45	69	52	54
Horses, head....	153.00	89.00	111.00	95.00	95.00	125	107	107
Butterfat, lb....	....	.37	.29	.25	.23	78	61	62
Milk, cwt.....	1.15	2.06	1.75	1.70	1.60	85	78	78
Eggs, doz.....	.16	.22	.17	.14	.16	76	66	74
Chickens, lb....	.12	.22	.14	.17	.16	66	76	73
Wool, lb.....	.19	.32	.35	.17	.18	109	54	56
Apples, bu.....	1.30	2.01	1.80	.95	.95	90	46	47
Hay, ton.....	14.31	14.37	16.00	8.90	8.10	111	63	56
Potatoes, bu....	.82	1.34	1.45	.75	.85	108	56	63
Illinois index of farm prices.....	....	....	....	....	....	112	76	74

¹⁻⁵Sources of data same as previous month.

THE UNIVERSITY OF ILLINOIS
COLLEGE OF AGRICULTURE
URBANA, ILLINOIS



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ILLINOIS FARM ECONOMICS

Department of Agricultural Economics, College of Agriculture and Agricultural Experiment Station, in cooperation with the Extension Service in Agriculture and Home Economics, University of Illinois

Urbana

July, 1938

Number 38

CURRENT ECONOMIC DISCUSSIONS ON THE AIR

The following special Agricultural Economics broadcasts are a part of the programs in Agriculture and Home Economics which are broadcast regularly by the College of Agriculture. The Agricultural Programs are daily except Saturday at 12:30 to 1:00 P.M. The Home Economics Programs are Monday, Wednesday, and Friday, 10:02-10:15 A.M., Station W I L L, 580 Kilocycles.

August 5—"Harvest Caravans"—E. H. REGNIER, L. F. DEMMING.

August 12—"Social and Economic Consequences of Soil Depletion"—R. C. ROSS, D. E. LINDSTROM, V. B. FIELDER.

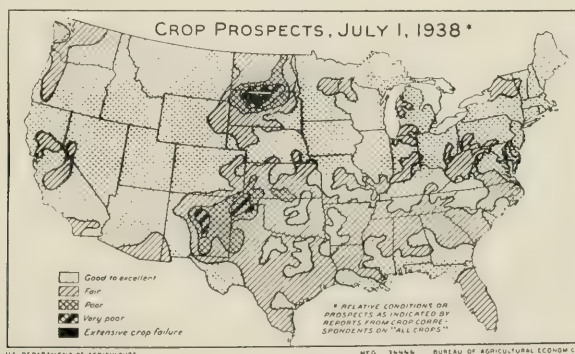
August 19—"The Current Economic Situation as it Affects the Farmer"—P. E. JOHNSTON.

August 26—"Dairy Supplies and Outlook"—R. W. BARTLETT.

CROP PROSPECTS

Based upon July 1 prospects, the country presents a very satisfactory picture of crop production for 1938. While production of several crops is still dependent upon weather conditions and there is considerable late corn, prospects indicate production of most crops in excess of that for the 10 years, 1927-36, tho materially less than the record crops of 1937 (Table 1). This description also fits Illinois, in which conditions are good to excellent except in the southern counties, where they are rated as fair.

Stocks of corn, wheat, and oats on farms July 1, both in Illinois and the United States, were much greater than the 10-year average, and far in excess of the short carryover of a year ago.



The outlook information in this issue is based upon reports issued by the Bureau of Agricultural Economics, United States Department of Agriculture—R. C. ROSS, *Editor*.

Printed in furtherance of the Agricultural Extension Act approved by Congress May 8, 1914. J. C. BLAIR, *Director*, Extension Service in Agriculture and Home Economics, University of Illinois

TABLE 1.—INDICATED CROP PRODUCTION JULY 1, 1938, COMPARED WITH PRODUCTION IN 1937 AND AVERAGE, 1927-36, AND STOCKS ON FARMS, JULY 1¹
(Thousands)

	Illinois			United States		
	1927-36	1937	Indicated July 1, 1938	1927-36	1937	Indicated July 1, 1938
Corn, bu.....	289,731	444,197	319,618	2,306,157	2,644,995	2,482,102
Wheat, all, bu.....	33,377	45,724	41,213	752,891	873,993	967,412
winter, bu.....	31,588	45,150	40,635	546,396	685,102	715,425
all spring, bu.....	1,789	574	578	206,494	188,891	251,987
Oats, bu.....	118,709	162,208	124,775	1,042,461	1,146,258	1,093,829
Barley, bu.....	8,174	3,712	4,292	234,895	219,635	239,375
Hay, all tame, tons.....	3,272	3,346	4,034	69,754	73,785	79,488
Hay, clover and timothy, ² tons.....	1,628	737	1,705	28,333	24,335	27,571
Hay, alfalfa, ² tons.....	617	652	836	23,948	27,056	28,951
Potatoes, bu.....	3,809	3,120	3,330	369,693	393,289	386,660
Apples, bu.....	4,099	8,960	4,032	150,728	210,673	134,394
Peaches, bu.....	1,424	2,117	1,425	52,498	59,724	53,651
Pears, bu.....	493	999	418	24,326	29,548	31,049

Stocks on Farms, July 1						
Corn, bu.....	75,112	24,741	142,877	405,332	155,115	640,861
Wheat, bu.....	1,396	1,093	2,743	51,691	21,851	59,258
Oats, bu.....	14,694	8,965	30,820	152,583	88,156	193,036

¹From U. S. D. A. Crop Report, July 1, 1938. ²Included in tame hay.

TABLE 2.—STATISTICAL SUMMARY OF THE SURVEY OF COOPERATIVE ASSOCIATIONS IN ILLINOIS, 1936

Kind of organization	No. of ass'ns	No. of members	No. of patrons	Sales of farm products	Sales of farm supplies	Total assets	Net worth
Grain marketing ¹	377	43,133	98,053	\$ 65,995,003	\$ 9,441,741	\$15,610,420	\$10,812,885
Livestock marketing							
Shipping associations.....	59	12,351	(²)	5,673,720	266,278	165,952	72,355
County marketing.....	6	4,600	(²)	2,595,015	59,098	68,138	28,018
Terminal commission.....	5	136,750	(²)	64,648,251	None	944,395	522,277
Total.....	70	153,701	(²)	72,916,986	325,376	1,178,485	622,650
Dairy marketing							
Milk bargaining.....	19	23,944	18,336	22,039,485	4,168	542,209	328,932
Milk distributing.....	7	1,904	2,340	1,583,595	26,033	541,717	337,733
Bargaining and processing	4	359	430	955,004	6,926	83,816	50,282
Creameries.....	15	11,393	12,064	2,724,763	9,788	610,090	415,345
Cheese factories.....	29	595	851	773,133	None	79,830	76,353
Produce buying.....	14	1,316	2,675	271,803 ³	239,452	131,087	103,267
Total.....	88	39,511	36,696	28,347,783	286,367	1,988,749	1,311,911
Fruit and vegetable marketing.....	13	1,103	1,599	385,083 ⁴	136,758	201,150	106,000
Seed marketing and purchasing.....	4	2,467	1,320	287,281	117,688	160,148	145,457
Purchasing							
Petroleum.....	71	61,838	83,467	None	11,764,724	4,617,096	2,746,410
General supply.....	22	4,575	10,372	None	1,062,562	607,054	511,142
Grand total.....	645	304,328	231,507	\$167,932,136	\$23,135,216	\$24,363,102	\$16,256,455

¹Local farmers' elevators only. ²Most patrons automatically made members. ³Includes poultry and egg sales.

⁴This was reduced by the very small fruit crop in 1936.

A SURVEY OF ILLINOIS COOPERATIVE MARKETING AND PURCHASING ASSOCIATIONS

A survey of farmers' cooperative marketing and purchasing associations in Illinois was made in 1937 by the Department of Agricultural Economics of the University of Illinois in cooperation with the St. Louis Bank for Cooperatives. Personal visits were made to most of the associations;¹ the period covered by the data collected refers to the last year for which records were available, usually the calendar year 1936. This report is based upon figures tabulated by the University of Illinois.

Complete reports secured from 645 farmers' cooperative marketing and purchasing associations revealed the following facts:

Number of associations.....	645
Number of members.....	304,328
Number of patrons.....	231,507
Sales of farm products.....	\$167,932,136
Sales of farm supplies.....	23,135,216
Total assets.....	24,363,102
Net worth.....	16,256,455

Similar figures for each of the various types of cooperative associations are given in Table 2. For those who wish more details than are given in this report, this department can supply special summaries for each of the following types of cooperative associations: (1) Grain marketing associations; (2) Livestock marketing associations; (3) Dairy marketing associations; (4) Purchasing associations.

Grain Marketing Associations. The grain marketing associations in this report include only local farmers' elevators. Figures were obtained for 377 associations. In addition to the data in Table 2, the facts obtained from the survey may be summarized as follows:

Grain handled, total.....	93,187,000 bushels
Grain handled per company.....	251,179 bushels
Expense per dollar of sales.....	4 cents
Rate earned on total assets.....	8.4 percent
Net worth per dollar of stock outstanding.....	\$1.59
Companies which paid patronage dividends.....	70
Patronage dividends paid.....	\$ 254,125
Credit used in 1936.....	\$2,195,543
Members who were producers.....	87 percent
Members who were patrons.....	83 percent
Patrons who were members.....	36 percent
Business with members.....	57 percent

Eight of the associations were organized before 1900, but the most active period of organization was from 1915 to 1919 when 106 of the 377 companies were chartered. Most of these associations are located in the cash grain areas in eastern and central Illinois, with very few in the southern and southwestern counties. One half of the companies required members to purchase a share of stock at \$100 (par value), while an additional 21 percent required the purchase of a \$50 share.

Livestock Marketing Associations. Three classes of livestock associations were interviewed.

(a) Livestock shipping associations, survivors of the large number which formerly served the state, are located principally in the western and northwestern counties. All but two were organized between 1915 and 1924. In most of them

¹The courteous cooperation of the managers and others connected with the associations is acknowledged.

each shipper automatically becomes a member. An interesting trend is that some of the associations have started to handle feed and other farm supplies.

(b) County marketing associations are found in east central Illinois. All were organized during the period 1929 to 1935. Their functions vary, but usually include trucking to the county assembling point, sorting, insuring and selling. Each association usually serves all or parts of several counties. Membership requirements vary from none, except delivering livestock, to the purchase of a share of capital stock at \$25.

(c) Cooperative livestock commission associations are now dominant in the field of cooperative livestock marketing in Illinois. They are located at Chicago, East St. Louis, Peoria, and Springfield, and were organized from 1921 to 1926. Any producer who consigns livestock to the association automatically becomes a member. The operating expenses averaged 1.1 cents per dollar of sales.

Dairy Marketing Associations. Six types of associations in the dairy marketing field are recognized.

(a) Milk bargaining associations are located at almost all important fluid milk marketing points in the state. They were organized at various times since 1920. The membership requirements of the 19 associations were as follows (number of companies in parentheses): must be a producer (6); small membership fee (7); purchase varying amounts of stock (6).

(b) Milk distributing associations are located at seven points in the state. Only two were organized before 1930. Financial requirements for membership ranged from none, except delivery of milk, to the purchase of a share of stock at \$100.

(c) Milk bargaining and processing functions were combined in four associations in the Chicago dairy area. They were organized between 1925 and 1937. Membership was acquired by purchasing one or five shares of preferred stock at \$10 per share.

(d) Cooperative creameries were operating at 15 points in Illinois in 1937. One was organized before 1915, four from 1920 to 1929, and ten from 1930 to 1934. Financial requirements for membership were the purchase of stock as follows: (number of companies in parentheses) \$100, (3); \$50, (1); \$25, (3); \$10, (1); free share, (6); and no requirement, (1). Nine companies paid patronage dividends in 1936 totaling \$37,504. Operating expenses averaged 8.7 cents per dollar of sales. The rate earned on total assets averaged 13.2 percent.

(e) Cooperative cheese factories are common in Stevenson, Jo Daviess, and Carroll Counties. Three of these were organized before 1900, and more than one-half between 1910 and 1919. Twenty-seven of the 29 associations operated on a pool basis, while the other two bought milk outright. The financial requirements for membership in 17 companies was the purchase of a share of stock at \$25; 10 associations had higher and two had lower requirements.

(f) The local produce buying stations include cream buying stations, general produce buying stations, and general stores handling cream, eggs, etc. The 14 associations included were organized at various times from 1916 to 1936.

Fruit and Vegetable Associations. The fruit and vegetable associations included companies marketing strawberries, apples, peaches, grapes, and onion sets; purchasing fertilizer, spray materials, and packing supplies; and operating a packing shed. They were organized at various times after 1909.

Seed Marketing and Purchasing. The four seed associations marketed redtop, timothy, clover, alfalfa, wheat, and seed corn; and purchased a variety of farm supplies.

Purchasing Associations. Of the 71 petroleum supply companies, 64 were

"county" associations affiliated with the county farm bureaus. Ninety percent of the companies were organized during the 10 year period, 1925 to 1934. The 63 associations affiliated with the Illinois Farm Supply Company issued gratis a share of common stock to their patrons who were members of the farm bureau. The others had a membership fee or required the purchase of a small amount of stock. Expense per dollar of sales averaged 19 cents. The rate earned on total assets averaged 32 percent. Patronage dividends amounting of \$1,105,670 were paid by 67 companies. The book value of stock was \$2.30 for each dollar of stock outstanding.

The 22 general supply companies included in this report handled a wide variety of products including feed, fuel, seed, inoculation, serum, building materials, implements, hardware, groceries and general merchandise. They are located in various parts of the state. Most of them were organized from 1920 to 1929. The most common financial requirement for membership was the purchase of a share of stock at \$100, although a few offered lower value stock and a few required the payment of dues.

L. H. SIMERL and L. J. NORTON.

MEASURES OF AGRICULTURAL AND BUSINESS CONDITIONS

With this issue of *Illinois Farm Economics* changes are being made in Tables A and B, which are carried regularly in each issue. Consequently, it seemed desirable in the current issue to extend some of the series farther back than is customary, and also to include some explanation of the significance of the various series, how they are derived, and how they may be brought to date from other contemporary sources.

In the first four columns of Table A are indexes of commodity prices; the first two are on a 1926 base—that is, the year 1926 is made to equal 100, and the third and fourth columns are on a 1924-29 base (the average of the period 1924-29 = 100). The first column represents the index of wholesale prices of *all commodities* as compiled by the United States Bureau of Labor Statistics. This index includes prices of 813 articles, weighted according to their relative importance. These 813 articles fall into 10 major groups including prices of farm products, foods, hides and leather, textile products, fuel and lighting, metals and metal products, building materials, chemicals and drugs, house furnishing goods, and miscellaneous commodities. This index of wholesale prices includes almost every type of commodity purchased or sold, and provides a useful cross-section picture of changes in the level of wholesale prices from year to year and from month to month.

The second column is the index of wholesale prices of *farm products*. It is one of the component groups of the all commodities index of the United States Bureau of Labor Statistics. It represents an average of 67 different price series of the principal farm products, including grains, livestock, livestock products, vegetables, fruits, cotton, hay, wool, tobacco, and other miscellaneous products. Prices paid at selected central wholesale markets are used. The third column is the index of prices received by Illinois farmers for their products. This index includes prices of 21 important and representative Illinois farm products which represent about 94 percent of the total Illinois cash farm income. The index of Illinois farm prices as compiled by the Illinois State Agricultural Statistician on a 1910-14 base is converted to the 1924-29 base by multiplying by .7151. This adjusts for the difference between 1910-14 and 1924-29 prices.

The index of prices paid by farmers, which appears in the fourth column, is calculated from the series computed by the United States Bureau of Agricultural

TABLE A. —INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural income ⁸	Factory payrolls ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S.	Illinois				
	All commodities ¹	Farm products ²			In money ⁵	In money ⁶	In purchasing power ⁷			
	1926 = 100	1926 = 100	1924-29 = 100	1924-29 = 100	1924-29 = 100	1924-29 = 100	1924-29 = 100	1924-29 = 100	1923-25 = 100	1923-25 = 100
1921	98	88	81	99	...	...	...	73	77	67
1922	97	94	81	97	...	...	...	76	82	85
1923	101	99	85	99	...	...	...	87	103	102
1924	98	100	91	99	96	102	103	90	96	94
1925	103	110	106	102	102	104	102	96	101	104
1926	100	100	99	101	98	98	97	100	104	108
1927	95	99	97	99	99	91	92	102	102	106
1928	97	106	103	101	101	100	99	104	102	111
1929	95	105	104	99	103	103	104	107	109	119
1930	86	88	89	94	83	87	93	100	88	96
1931	73	65	62	80	58	58	72	86	67	81
1932	65	48	41	69	43	43	62	68	46	64
1933	66	51	45	71	49	51	72	63	49	76
1934	75	65	61	80	57	55	69	72	63	79
1935	80	79	82	81	64	65	80	77	71	90
1936	81	81	86	80	75	82	102	87	82	105
1937	86	86	96	84	81 ¹¹	86	102	96	98	110
1938 Jan.	81	72	74	82	70	85	104	90	72	80
Feb.	80	70	71	82	62	79	96	88	73	79
Mar.	80	70	72	81	67	80	99	88	73	79
Apr.	79	68	70	81	70	85	105	87	71	77
May	78	68	69	81	68 ¹¹	88	109	86	69 ¹¹	76 ¹¹
June	78 ¹¹	68 ¹¹	70	80 ¹¹	...	...	...	...	...	...

¹⁻¹¹The first source is for annual data; the second is for current data from which tables may be brought to date.

¹Survey of Current Business, 1936 supplement, U. S. Dept. of Commerce; subsequent monthly issues. ²Same as footnote 1. ³Illinois Crop and Livestock Statistics, Circular 438 (1937); monthly mimeographs of Statistical Tables for Illinois Crop Report, converted from 1910-14 = 100 to 1924-29 = 100 by multiplying by .7151. ⁴Agricultural Situation, Bureau of Agricultural Economics, U. S. D. A.; Agricultural Situation, converted from 1910-14 = 100 to 1924-29 = 100 by multiplying by .6486. ⁵Calculated from data furnished by Bureau of Agricultural Economics; Survey of Current Business, seasonally adjusted. ⁶Calculated by Department of Agricultural Economics, University of Illinois, seasonally adjusted. ⁷Data from Farm Income, Bureau of Agricultural Economics; B.A.E. monthly mimeograph, Receipts from Sale of Principal Farm Products (government payments not included). ⁸Obtained by dividing Index of Illinois Farm Income (column 6) by Index of Prices Paid by Farmers (column 4). ⁹Monthly Indexes of Non-Agricultural and National Income, Supplement, August, 1937, B.A.E.; Price and Demand Situation, or Agricultural Situation. ¹⁰Survey of Current Business, 1936 Supplement; subsequent monthly issues, unadjusted for seasonal variation. ¹¹Federal Reserve Bulletin of Federal Reserve Board, September, 1933 and subsequent issues; Survey of Current Business, seasonally adjusted. ¹¹Preliminary estimate.

Economics, and represents index numbers of prices paid by farmers for products used in production and for family living for the country as a whole. Figures for the State of Illinois alone are not available but it is presumed that they would differ but little from the corresponding figures for the United States. The original series which is computed on a base of 1910-14 = 100 is converted to the 1924-29 base by multiplying by .6486.

In columns five to eight appear indexes of income, the first three are income from marketings of farm products and the last is non-agricultural income. All of these income indexes are on a 1924-29 base, and adjusted for seasonal variation, so as to eliminate the variations which typically occur between seasons.

The first of these four income columns, column 5, relates to farm income for the United States as a whole, and is compiled by the United States Bureau of Agricultural Economics. Columns 6 and 7 refer to Illinois farm income. Column 6 represents changes in money income, whereas column 7 represents the value of income in terms of dollars of constant purchasing power, 1924-29 relationships equalling 100. This index of the purchasing power of cash farm marketings measures the farmer's cash income in terms of goods and services which he can buy. Both of these indexes are calculated by the Department of Agricultural

Economics of the University of Illinois from data of monthly receipts of sales of principal farm products, as gathered by the U. S. Bureau of Agricultural Economics. Column 7 is calculated by dividing the figures in column 6 by the index of prices paid by farmers converted to a 1924-29 base (column 4).

It will be noted that from 1924 to 1929, when the index numbers of prices paid by farmers differed little from the 100 level, the two series of Illinois farm income indexes (columns 6 and 7) are almost identical. In 1932, however, when prices paid by farmers had fallen to approximately 69 percent of the 1924-29 average, the index of purchasing power of farm income was far higher than the index of money income because prices of goods bought by farmers had decreased.

All the indexes of income from farm marketings are adjusted for seasonal variation, and none include income received through government payments. The question might be raised as to whether such income ought to be included. Since these payments are made irregularly both from month to month and from one year to the next, they tend to distort the representativeness of the monthly indexes and so were excluded. For those interested in the level of the total cash farm income, the following table may prove helpful. These figures may be added to columns 5 and 6 respectively in Table A.

PERCENT OF 1924-29 CASH FARM INCOME FROM GOVERNMENT PAYMENTS

Year	<i>United States</i>	<i>Illinois</i>	Year	<i>United States</i>	<i>Illinois</i>
1933.....	1.6	.7	1936.....	2.8	3.1
1934.....	5.5	4.2	1937.....	3.6	2.9
1935.....	5.7	6.4			

The index of non-agricultural income, given in column 8, is compiled by the Bureau of Agricultural Economics; it is computed on a base of 1924-29 = 100. This index measures the total national income, excluding agricultural income and is much broader than the index of factory payrolls. It includes receipts from interest, rents, salaries and profits, and wages to all classes of labor including those paid to factory payrolls. This index constitutes one of the best measures of the demand for farm products. It is adjusted for typical seasonal variations.

The indexes of factory payrolls and industrial production (columns 9 and 10) are both shown on a 1923-25 base, as used by the agencies which originally compiled them. The index of industrial production is adjusted for normal seasonal variation.

The index of factory payrolls, like that of non-agricultural income, is a good index of the demand for farm products. Factory payrolls represent about one-sixth of the income measured by the index of national income. Factory payrolls are a better index of demand for some agricultural products than is the less sensitive index of non-agricultural income but for other commodities it is less satisfactory. Payrolls are a particularly good index of demand for commodities purchased largely by laboring classes. For example, this index apparently explains the demand for pork better than the index of national income, inasmuch as the laboring classes consume more than their proportionate share of pork and pork products. Note that this index fell much lower in 1932 and 1933 than did the index of non-agricultural income, because it had less of an upward trend, and even more important, because factory payrolls are much more sensitive to changes in levels of business activity than non-agricultural income as a whole.

The index of industrial production which appears in column 10 is perhaps the most fundamental measure available of prosperity and depression. Farm income,

non-agricultural income, and factory payrolls all rise and fall largely because of changes in the level of industrial production. Furthermore, the demand for farm products is influenced not only by the purchasing power of laborers and other consumers, but also by the quantities of farm products which are consumed in industry. It is also a good measure of what may be termed the "real demand" for farm products; i.e., of changes in the quantity demand at given prices after account is taken of changes in the purchasing power of the dollar.

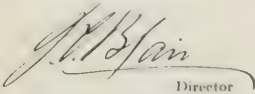
TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS¹

Product	Yearly average			Current months			
	1924-29	1936	1937	Mar.	Apr.	May	June
Corn, bu.....	\$.79	\$.75	\$.94	\$.46	\$.48	\$.49	\$.49
Oats, bu.....	.41	.31	.39	.27	.26	.25	.23
Wheat, bu.....	1.27	1.00	1.10	.81	.76	.72	.68
Barley, bu.....	.65	.74	.84	.67	.63	.61	.51
Soybeans, bu.....	1.77	.94	1.20	.85	.80	.80	.80
Hogs, cwt.....	9.80	9.70	10.11	8.90	8.10	7.70	8.40
Beef cattle, cwt.....	8.52	7.51	8.93	7.10	7.40	7.40	7.80
Lambs, cwt.....	12.00	8.74	9.58	8.10	7.80	7.60	8.20
Milk cows, head.....	78.61	55.00	61.00	60.00	60.00	59.00	59.00
Veal calves, cwt.....	11.25	8.49	9.43	8.90	8.70	8.30	8.40
Sheep, cwt.....	6.35	3.66	4.09	3.60	3.50	3.45	3.40
Butterfat, lb.....	.42	.31	.32	.28	.25	.23	.22
Milk, cwt.....	2.31	1.80	1.92	1.85	1.70	1.55	1.50 ²
Eggs, doz.....	.27	.21	.20	.15	.14	.16	.16
Chickens, lb.....	.21	.16	.16	.16	.17	.16	.16
Wool, lb.....	.35	.29	.32	.23	.17	.18	.17
Apples, bu.....	1.36	1.15	1.18	.85	.95	.95	.90
Hay, ton.....	1.27	13.33	12.41	9.90	8.90	8.10	7.80
Potatoes, bu.....	1.44	1.22	1.12	.75	.75	.85	1.10

¹Illinois Crop and Livestock Statistics, Cir. 438; Monthly price releases, State Agricultural Statistician.
²Preliminary.

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ILLINOIS FARM ECONOMICS

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Number 39

CURRENT ECONOMIC DISCUSSIONS ON THE AIR

The following special Agricultural Economics broadcasts are a part of the programs in Agriculture and Home Economics which are broadcast regularly by the College of Agriculture. The Agricultural Programs are daily except Saturday at 12:30 to 1:00 P.M. The Home Economics Programs are Monday, Wednesday, and Friday, 10:02-10:15 A.M., Station W I L L, 580 Kilocycles.

September 2—"The Farm Sports Festival"—D. E. LINDSTROM, E. H. REGNIER.

September 9—"New Influences Affecting Landlord-Tenant Relationships"—R. H. WILCOX, JOSEPH ACKERMAN.

September 16—"The Current Economic Situation as It Affects the Farmer"—E. J. WORKING, K. L. BACHMAN.

September 23—"A Message to Farm Account Keepers"—J. B. CUNNINGHAM, M. P. GEHLBACH.

September 30—"Developments in the Feed and Feeder Situation"—R. C. ASHBY, P. E. JOHNSTON.

THE LIVESTOCK SITUATION

General Business Conditions. The demand for livestock and livestock products has been improving for two months. The July level of industrial production was about six percent higher than for June. This represents an upturn coming at the end of a decline which had lasted one year. There is a possibility that the

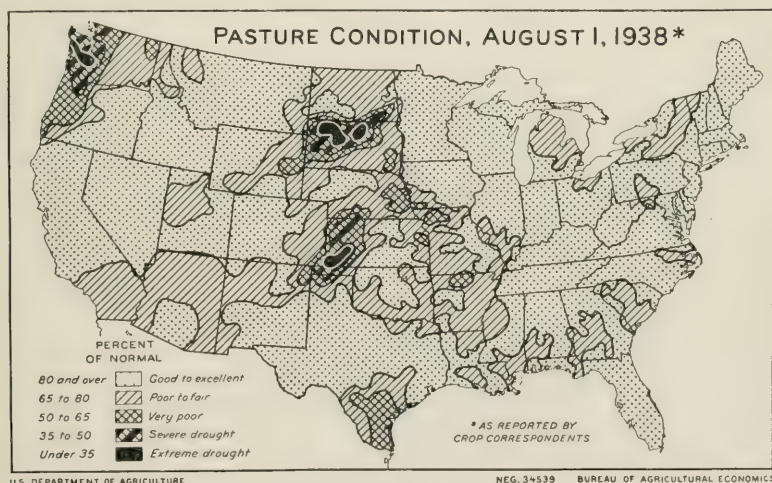


FIG. 1. PASTURE CONDITIONS IN THE UNITED STATES HAVE BEEN EXCEPTIONALLY GOOD THIS YEAR

The outlook information in this issue is based upon reports issued by the Bureau of Agricultural Economics, United States Department of Agriculture—R. C. ROSS, *Editor*.
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present upturn will be of short duration. The preponderance of evidence, however, is in favor of some improvement for the next few months. Any sustained increase in the volume of industrial production will be reflected in increased returns to livestock producers for products sold.

The most significant improvement has been in the steel and automobile industries, both of which now have higher levels of production than was anticipated. Consumption has been exceeding production and inventories have been reduced. This expansion in business activity has apparently been in response to consumer demand.

Wholesale prices of all commodities in the United States are now about three percent below the 1935-1936 level. In contrast, industrial wages are slightly higher than they were in 1935 and 1936. High wage rates tend to retard business recovery when not supported by increased production.

Illinois farm prices for the first six months of 1938 were 30 percent below the average for these same months in 1937. With the large volume of products marketed, however, receipts from the sale of principal Illinois farm products for the first six months of 1938 were only three percent less than the receipts for this same period in 1937.

Feed Supply. A corn crop of 2,566 million bushels is indicated for the United States on the basis of the August 1 estimate. This indicated production is three percent less than the crop of 1937, but 11 percent above the average crop of the ten-year period, 1927 to 1936. In addition, there was, on July 1, 1938, a carry-over of about 641 million bushels of corn from the 1937 crop. This carryover represented 27.3 percent of the production of the previous year. Illinois had on hand, July 1, 1938, over a third of the previous year's crop.

The numbers of livestock are now low and increases in livestock and poultry during the coming year are not expected to increase feed grain requirements by more than five percent. *If nothing happens to the corn crop, the total supply of feed grain per unit of livestock will probably be larger than in any of the past 12 years.* Hay supplies per unit of hay-consuming livestock are also expected to be heavier than in any of the last 15 years except 1927. Farm pastures are in better than average condition in nearly all states. For the country as a whole they average better than in any August since 1928 (Fig. 1).

Beef Cattle. The number of cattle on feed for market on August 1 was reported to be about 12 percent larger in the Corn Belt states than a year ago. This increase compares with estimated increases of 20 percent on April 1 and 15 percent on January 1, 1938. Reports from feeders indicate that they intend to purchase more feeder cattle during the rest of 1938 than they purchased in the same period of 1937. Total marketings in the first six months of 1938 were two percent less for cattle and 14 percent less for calves than those for the first six months of 1937.

For the first seven months in 1938, five percent more steers were received at Chicago than in 1936. This included about a third more good, choice, and prime steers, and a third less of medium and common steers.

The number of cattle to be slaughtered during the second half of 1938 may total about the same as the second half of 1937. More steers will probably be slaughtered, but the cow and heifer slaughter is likely to be much less than a year ago. With excellent pasture conditions in the range area and with increased feed production in the western Corn Belt states, it is very likely that the number of cattle held in those areas for feeding and for replacement will be larger than usual. Facts indicate that we have probably reached the low point in the present cattle cycle and that for a number of years breeding stock will be held back. This means stiff competition for feeder cattle.

Sheep and Lambs. In 1938 the nation's lamb crop was estimated at 32 million head, the largest on record. This year's production is about five percent larger than the 1937 production and about seven percent larger than the 1933-1937 average. Shipments of stocker and feeder lambs in July totaled 44 thousand head as compared with 39 thousand for the corresponding period of 1937. The price of lambs normally declines during the summer months, as the supply of grass fed lambs increases. It is likely that 1938 will be no exception to this rule.

Hogs. The spring pig crop for 1938 for the United States is estimated as 13 percent larger than in 1937. The number of sows to farrow in the fall season of 1938 is indicated as nine percent larger than for a year earlier. If these estimates prove to be accurate, we will have a total 1938 crop of about 69 million head of pigs as compared with 63 million head in 1937.

Marketings of hogs for the first six months of 1938, under federal inspection, were five percent larger than for 1937, but 29 percent less than a five-year average. Receipts of hogs at seven principal markets in July, 1938, were 734,000 head as compared with 692,000 head in July, 1937. There is normally a rather sharp seasonal drop in the price of hogs from the summer season until the end of the year. The decline this year will be accentuated by increasing hog numbers, but may be counteracted in part by increasing consumer demand.

P. E. JOHNSTON

The Wheat Outlook. The Illinois farm price of wheat at harvest time this year was only about half the price of a year earlier. There are four important reasons for this. First, supplies of wheat are much larger. Second, last year at harvest time the price was unduly lifted by a wheat crop scare. Third, business activity is lower than a year ago. Fourth, prices of corn and mill feeds were much below the prices at harvest time last year.

Total supplies of wheat in the United States for the year beginning July 1, 1938 are estimated at 1,136 million bushels. This is about 20 percent larger than supplies for the previous year. Of this 1,136 million bushels, only about 500 million bushels will be milled for flour for consumption in the United States. About 80 million bushels of wheat will be used for seed. Although exports from the 1937 crop amounted to approximately 100 million bushels, those from the 1938 crop are likely to be considerably less. This year importing countries of Europe have better wheat crops, and Canada will have about twice as large a crop as the one harvested in 1937. More wheat may be fed in 1938-1939 because of its relatively low price as compared with other feeds and because of poor quality of much of the wheat this year. It is estimated that the carryover on July 1, 1939 will be about 375 million bushels. This would be about the same as that in 1932 and 1933.

Relatively low prices are likely to prevail until the present large supplies are materially reduced.

L. H. SIMERL

¹⁻¹³The first source is for annual data; the second is for current data from which tables may be brought to date.

¹Survey of Current Business, 1936 supplement, U.S. Dept. of Commerce; subsequent monthly issues. ²Same as footnote 1. ³Illinois Crop and Livestock Statistics, Circular 438 (1937); monthly mimeographs of Statistical Tables for Illinois Crop Report, converted from 1910-14 = 100 to 1924-29 = 100 by multiplying by .7151. ⁴Agricultural Situation, Bureau of Agricultural Economics, U.S.D.A.; Agricultural Situation, converted from 1910-14 = 100 to 1924-29 = 100 by multiplying by .6486. ⁵Calculated from data furnished by Bureau of Agricultural Economics; Survey of Current Business, seasonally adjusted. ⁶Calculated by Department of Agricultural Economics, University of Illinois, seasonally adjusted. Data from Farm Income, Bureau of Agricultural Economics; B.A.E. monthly mimeograph, Receipts from Sale of Principal Farm Products (government payments not included). ⁷Obtained by dividing Index of Illinois Farm Income (column 6) by Index of Prices Paid by Farmers (column 4). ⁸Monthly Indexes of Non-Agricultural and National Income, Supplement, August, 1937, B.A.E.; Price and Demand Situation, or Agricultural Situation. ⁹Survey of Current Business, 1936 Supplement; subsequent monthly issues, unadjusted for seasonal variation. ¹⁰Federal Reserve Bulletin of Federal Reserve Board, September, 1933 and subsequent issues; Survey of Current Business, seasonally adjusted. ¹¹Preliminary estimate. ¹²Illinois Crop and Livestock Statistics, Cir. 438; Monthly price releases, State Agricultural Statistician. ¹³Preliminary.

TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural income ⁸	Factory payrolls ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S.		Illinois			
	All commodities ¹	Farm products ²			In money ⁵	In money ⁶					In purchasing power^{7}
Base period.....	1926	1926	1924-29	1924-29	1924-29	1924-29	1924-29	1924-29	1923-25	1923-25
1929.....	95	105	104	99	103	103	104	107	109	119
1930.....	86	88	89	94	83	87	93	100	88	96
1931.....	73	65	62	80	58	58	72	86	67	81
1932.....	65	48	41	69	43	43	62	68	46	64
1933.....	66	51	45	71	49	51	72	63	49	76
1934.....	75	65	61	80	57	55	69	72	63	79
1935.....	80	79	82	81	64	65	80	77	71	90
1936.....	81	81	86	80	75	82	102	87	82	105
1937.....	86	86	96	84	81	86	102	96	98	110
1938 Jan.....	81	72	74	82	70	85	104	90	72	80
Feb.....	80	70	71	82	62	79	96	88	73	79
Mar.....	80	70	72	81	67	80	99	88	73	79
Apr.....	79	68	70	81	70	85	105	87	71	77
May.....	78	68	69	81	68	88	109	86	69	76
June.....	78	69	70	80	72	84	105	85	67 ¹¹	77 ¹¹
July.....	78 ¹¹	69 ¹¹	74 ¹¹	80 ¹¹	.....	.....	.....	.....	.....	.....

TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS¹²

Product	Yearly average			Current months			
	1924-29	1936	1937	Apr.	May	June	July
Corn, bu.....	\$.79	\$.75	\$.94	\$.48	\$.49	\$.49	\$.50
Oats, bu.....	.41	.31	.39	.26	.25	.23	.22
Wheat, bu.....	1.27	1.00	1.10	.76	.72	.68	.62
Barley, bu.....	.65	.74	.84	.63	.61	.51	.46
Soybeans, bu.....	1.77	.94	1.20	.80	.80	.80	.80
Hogs, cwt.....	9.80	9.70	10.11	8.10	7.70	8.40	9.20
Beef cattle, cwt.....	8.52	7.51	8.93	7.40	7.40	7.80	8.90
Lambs, cwt.....	12.00	8.74	9.58	7.80	7.60	8.20	8.30
Milk cows, head.....	78.61	55.00	61.00	60.00	59.00	59.00	62.00
Veal calves, cwt.....	11.25	8.49	9.43	8.70	8.30	8.40	8.60
Sheep, cwt.....	6.35	3.66	4.09	3.50	3.45	3.40	3.10
Butterfat, lb.....	.42	.31	.32	.25	.23	.22	.23
Milk, cwt.....	2.31	1.80	1.92	1.70	1.55	1.50	1.50 ¹³
Eggs, doz.....	.27	.21	.20	.14	.16	.16	.17
Chickens, lb.....	.21	.16	.16	.17	.16	.16	.15
Wool, lb.....	.35	.29	.32	.17	.18	.17	.18
Apples, bu.....	1.36	1.15	1.18	.95	.95	.90	.85
Hay, ton.....	1.27	13.33	12.41	8.90	8.10	7.80	6.30
Potatoes, bu.....	1.44	1.22	1.12	.75	.85	1.10	.75

1-13For sources of data in tables see previous page.

THE UNIVERSITY OF ILLINOIS
COLLEGE OF AGRICULTURE
URBANA, ILLINOIS

J. B. Blair
Director

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ILLINOIS FARM ECONOMICS

Department of Agricultural Economics, College of Agriculture and Agricultural Experiment Station, in cooperation with the Extension Service in Agriculture and Home Economics, University of Illinois

Urbana

September, 1938

Number 40

CURRENT ECONOMIC DISCUSSIONS ON THE AIR

The following special Agricultural Economics broadcasts are a part of the programs in Agriculture and Home Economics which are broadcast regularly by the College of Agriculture. The Agricultural Programs are daily except Saturday at 12:30 to 1:00 P.M. The Home Economics Programs are Monday, Wednesday, and Friday, 10:02-10:15 A.M., Station W I L L, 580 Kilocycles.

October 7—"Trends Affecting Rural Organization"—D. E. LINDSTROM, E. H. REGNIER, G. L. JORDAN.

October 14—"The Apple Situation"—J. W. LLOYD, V. A. EKSTROM.

October 21—"The Current Economic Situation as It Affects the Farmer"—L. J. NORTON, R. W. BARTLETT.

October 28—"Farming in Europe"—C. L. STEWART.

PROFITS FROM FEEDING FALL PURCHASED STEERS

Many farmers are now faced with the problem of whether they should purchase steers to utilize a part of the corn which they have raised this year. Their decisions should depend, in part, upon how well equipped they are for feeding and upon their individual efficiency as cattle feeders. Such decisions should also depend upon their appraisal of cattle price prospects and upon the value of feed.

The man who can get a government loan on his corn should consider it worth the loan value, whereas corn not eligible for a loan may best be valued at the current market price. Present indications are that, although only a 57-cent loan is assured, the crop will be small enough to raise the government loan value to 61 cents. Corn not eligible for a loan, on the other hand, would be worth only about 35 to 40 cents per bushel in northern Illinois on the basis of the current price for December futures at Chicago. Obviously, it might pay to feed 35- or 40-cent corn to cattle but not pay to feed 55- or 60-cent corn.

The appraisal of cattle price prospects is perhaps the most difficult of the prospective feeders' problems. Cattle purchased last fall gave poor returns to the feeder unless he was exceptionally efficient or marketed his cattle late—in June or later. But it was difficult for the feeder to know a year ago that he would do best to finish out and sell his cattle later than usual. In October of last year, 500- to 800-pound good feeder steers at Kansas City averaged \$7.35 per hundredweight, whereas good slaughter steers weighing from 900 to 1100 pounds averaged \$13.72 per hundredweight. By May, however, finished steers of that grade had declined to an average of \$8.73 which provided only a small margin for costs of feeding and shipping. In July the price of the finished steers had risen to \$9.98 which was sufficient to provide moderately good returns for the feeder whose feeder steers had cost only about \$7 at Kansas City.

In the latter part of September, this year, good 500- to 800-pound feeder steers at Kansas City have been selling for about \$7.50 per hundredweight, and good

The outlook information in this issue is based upon reports issued by the Bureau of Agricultural Economics, United States Department of Agriculture—R. C. ROSS, *Editor*.

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900- to 1100-pound slaughter steers at Chicago were selling at about \$10 per hundredweight.

Both prices and profits have fluctuated widely during the last four years. Large changes in profits have commonly occurred when something causes a considerable widening or narrowing of the feeder margin, that is, the difference between the cost of the feeder and sales value of the fat steer. When the margin widens, feed prices are commonly higher but do not generally offset the increased margin. Similarly, when the margin between feeder and slaughter animals is narrowed, feed prices are commonly lower but not low enough to offset the decline in margins. The variation in profits has been largely caused by uneven marketing arising from the great differences in supply of feed grains. Changes in the general level of demand have also been an important factor in affecting fat cattle prices, and range conditions are important in influencing supplies and prices of feeder cattle.

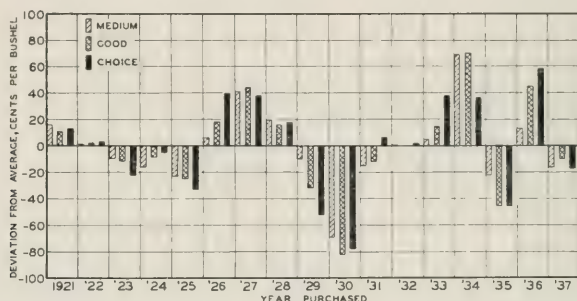


FIG. 1.—PROFITS FROM FEEDING FALL PURCHASED STEERS

Returns above or below value of feed (including corn) from yearling steers. Returns are calculated per bushel of corn fed and expressed as deviations from the average for each grade.

A fairly comprehensive picture of the returns from typical feeding operations may be obtained by calculating the returns above feed cost for various grades of yearling feeders purchased in the fall and marketed after appropriate feeding periods as medium, good, and choice slaughter cattle. These returns, expressed as deviations of each grade from its 1921-1937 average, are shown in Fig. 1. The slaughter steers were assumed to be the same grade as the feeder steers purchased. The cost of all grades of the feeder cattle was calculated at the average price for October and November. The cost of feed was calculated on the basis of rations typical for the grade and length of feed of the cattle, and the prices used were those current in October and November. This seems the fairest method of evaluating these costs because ordinarily the farmer has the feed on hand and has the choice of selling it or feeding it. If he feeds it he has really sold it to his cattle feeding enterprise at the time of his decision.

Since a number of rather constant elements of cost, including transportation, marketing and labor, are not included directly, they are allowed for by expressing the returns as deviations from average. When returns are equal to average this is indicative of a situation when the average feeder made only sufficient money to pay for his home-grown feed and out-of-pocket costs, plus a reasonable return for his labor and investment.

The year-to-year changes in returns from typical feeding operations have a distinct cyclical tendency. After about three years, when returns are below average, there are likely to be three years of better-than-average returns. This may

be partially explained by the tendency for many farmers to get into cattle feeding after a few years of profitable feeding and to become discouraged after a few years of indifferent profits or of losses.

Other influences modify this situation, however. One of these is the supply of feed compared with the numbers of livestock on farms. If farmers have large supplies of feed grains on hand in relation to the amount of livestock, many will turn to cattle feeding as a method of marketing their grain. If the supply of feed is scarce, on the other hand, many farmers will hold their cattle over until another year or sell them as grass cattle instead of feeding them out. Such increases in supplies of fed cattle resulting from large feed supplies has generally reduced the price of slaughter steers in the spring enough to more than offset the reduced feed costs. The reduction in numbers of cattle marketed in years of small feed supplies has generally caused a price rise which more than offsets the increased cost of feed. Thus, in 1935-36, returns were much below average, although it had been preceded by only two years of high returns. That year our domestic feed grain supplies were very large relative to livestock numbers. On the other hand, in 1936-37 feeding profits were large although that year had been preceded by only a single year of losses.

When feed supplies change from one year to the next, the largest proportional change in marketings generally comes among the better quality, longer fed cattle. Following the drouth of 1936, for example, the number of choice and prime declined 49 percent, while the number of medium declined only 9 percent. This naturally tended to cause the price of better grades to be more affected. This larger variation in the supply of better quality beef tends to increase the returns for good and choice relative to medium and common in years of small feed supplies, and reduce their returns in years of large supplies. In three out of four of the years of smallest feed supplies, returns for medium steers have been least and returns for choice greatest. In two out of three years of large crops, on the other hand, returns per bushel of corn fed were least for choice and greatest for medium.

Demand conditions must always be considered, for they continually intervene to modify and condition the returns that can otherwise be expected. Feeding has generally been profitable during periods of rapidly increasing demand, which always results from a marked improvement of business activity. During the past three months there has been a marked improvement in business activity, as indicated by a rise of the Federal Reserve Board's index of industrial production (seasonally adjusted) from 76 in May and 77 in June to 88 for August. If there should be a continuation of this rise, it might well mean a good year for feeding cattle in place of one of indifferent or poor returns.

K. L. BACHMAN and F. J. WORKING

¹⁻¹²The first source is for annual data; the second is for current data from which tables may be brought up to date.

¹Survey of Current Business, 1936 supplement, U.S. Dept. of Commerce; subsequent monthly issues. Same as footnote 1. ²Illinois Crop and Livestock Statistics, Circular 438 (1937); monthly mimeographs of Statistical Tables for Illinois Crop Report, converted from 1910-14 = 100 to 1924-29 = 100 by multiplying by .7151. ³Agricultural Situation, Bureau of Agricultural Economics, U.S.D.A.; Agricultural Situation, converted from 1910-14 = 100 to 1924-29 = 100 by multiplying by .6486. ⁴Calculated from data furnished by Bureau of Agricultural Economics; Survey of Current Business, seasonally adjusted. ⁵Calculated by Department of Agricultural Economics, University of Illinois, seasonally adjusted. Data from Farm Income, Bureau of Agricultural Economics; B.A.E. monthly mimeograph. Receipts from Sale of Principal Farm Products (government payments not included). ⁶Obtained by dividing Index of Illinois Farm Income (column 6) by Index of Prices Paid by Farmers (column 4). ⁷Monthly Indexes of Non-Agricultural and National Income, Supplement, August, 1937, B.A.E.; Price and Demand Situation, or Agricultural Situation. ⁸Survey of Current Business, 1936 Supplement; subsequent monthly issues, unadjusted for seasonal variation. ⁹Federal Reserve Bulletin of Federal Reserve Board, September, 1933 and subsequent issues; Survey of Current Business, seasonally adjusted. ¹⁰Preliminary estimate. ¹¹Illinois Crop and Livestock Statistics, Cir. 438; Monthly price releases. State Agricultural Statistician.

TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural income ⁸	Factory payrolls ⁹	Industrial production ¹⁰	
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S.		Illinois				
	All commodities ¹	Farm products ²			In money ⁵	In money ⁶					In purchasing power ⁷
Base period.....	1926	1926	1924-29	1924-29	1924-29	1924-29	1924-29	1924-29	1923-25	1923-25	
1929.....	95	105	104	99	103	103	104	107	109	119	
1930.....	86	88	89	94	83	87	93	100	88	96	
1931.....	73	65	62	80	58	58	72	86	67	81	
1932.....	65	48	41	69	43	43	62	68	46	64	
1933.....	66	51	45	71	49	51	72	63	49	76	
1934.....	75	65	61	80	57	55	69	72	63	79	
1935.....	80	79	82	81	64	65	80	77	71	90	
1936.....	81	81	86	80	75	82	102	87	82	105	
1937.....	86	86	96	84	81	86	102	96	98	110	
1938 Jan.....	81	72	74	82	70	85	104	90	72	80	
Feb.....	80	70	71	82	62	79	96	88	73	79	
Mar.....	80	70	72	81	67	80	99	88	73	79	
Apr.....	79	68	70	81	70	85	105	87	71	77	
May.....	78	68	69	81	68	88	109	86	69	76	
June.....	78	69	70	80	72	84	105	85	67	77	
July.....	79	69	74	80	83	80	100	86	68	83 ¹¹	
Aug.....	78 ¹¹	67 ¹¹	66	79							

TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS¹²

Product	Yearly average			Current months			
	1924-29	1936	1937	May	June	July	Aug.
Corn, bu.....	\$.79	\$.75	\$.94	\$.49	\$.49	\$.50	\$.44
Oats, bu.....	.41	.31	.39	.25	.23	.22	.18
Wheat, bu.....	1.27	1.00	1.10	.72	.68	.62	.54
Barley, bu.....	.65	.74	.84	.61	.51	.46	.40
Soybeans, bu.....	1.77	.94	1.20	.80	.80	.80	.70
Hogs, cwt.....	9.80	9.70	10.11	7.70	8.40	9.20	8.00
Beef cattle, cwt.....	8.52	7.51	8.93	7.40	7.80	8.90	8.10
Lambs, cwt.....	12.00	8.74	9.58	7.60	8.20	8.30	7.50
Milk cows, head.....	78.61	55.00	61.00	59.00	59.00	62.00	60.00
Veal calves, cwt.....	11.25	8.49	9.43	8.30	8.40	8.60	8.70
Sheep, cwt.....	6.35	3.66	4.09	3.45	3.40	3.10	3.10
Butterfat, lb.....	.42	.31	.32	.23	.22	.23	.28
Milk, cwt.....	2.31	1.80	1.92	1.55	1.50	1.50	1.55
Eggs, doz.....	.27	.21	.20	.16	.16	.17	.17
Chickens, lb.....	.21	.16	.16	.16	.16	.15	.14
Wool, lb.....	.35	.29	.32	.18	.17	.18	.20
Apples, bu.....	1.36	1.15	1.18	.95	.90	.85	.90
Hay, ton.....	1.27	13.33	12.41	8.10	7.80	6.30	5.90
Potatoes, bu.....	1.44	1.22	1.12	.85	1.10	.75	.55

¹⁻¹²For sources of data in tables see previous page.

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November 4—"The 1938-39 Rural Music and Drama Festival," E. H. REGNIER, L. F. DEMMING, RALPH MCKENZIE.

November 11—"Corn and Soybean Outlook," L. J. NORTON, L. H. SIMERL.

November 18—"The Current Economic Situation as it Affects the Farmer," E. J. WORKING, E. M. HUGHES.

November 25—"Farm Lease Helps," H. C. M. CASE, JOSEPH ACKERMAN.

HOW MANY HOGS DO WE NEED?

How many hogs should farmers in the United States produce in the next five years? That this question is pertinent is indicated by the following facts.

For the four-year period 1934-37 an average of 59.5 million pigs were saved a year in the United States, as contrasted with an average of 76.0 millions for the period 1924-29, and 81.0 millions for the years 1930-33. (Table 1). The low point in hog production came in 1935 when only 55.1 million pigs were saved. In 1937 there were 62.2 million pigs saved and following the good corn crop of 1937, preliminary estimates indicate about 70 millions for 1938 with further increases in prospect for 1939.

Hog numbers normally change from year to year in a more or less regular fashion called the hog cycle. This change in numbers is associated with changes in the relative prices of corn and hogs, often expressed as a hog-corn ratio. The size of the corn crop is one of the important causes of changes in the ratio of corn and hog prices.

For the period 1924-29 the hog-corn ratio averaged 11.4; that is 11.4 bushels of corn were equal in value to 100 pounds of hogs (Chicago prices). For the period 1934-37, which included two drouth years, the hog-corn ratio was 10.0, and for 1937, 9.7. Since hog feeding during this period was less profitable than average and feed supplies were limited, the number of hogs raised dropped to a record

TABLE 1.—PRODUCTION, EXPORTS, AND CONSUMPTION OF PORK AND LARD, UNITED STATES 1924-29, 1934-37 AND 1937

Item	Average 1924-29	Average 1934-37	1937
Pigs saved in the United States (million head).....	76.0	59.5	62.2
Federally inspected slaughter of hogs (million head).....	46.4	34.4	31.6
Total slaughter of hogs (million head).....	69.2	57.0	53.7
Production of corn in the United States (million bushels).....	2,562	1,985	2,645
Net exports of pork (thousand pounds).....	467,782	80,837	2,850
Net exports of lard (thousand pounds).....	800,494	242,954	103,468
Population of the United States (million persons).....	117.4	128.0	129.3
Per capita consumption of pork (pounds).....	69.3	55.7	55.1
Per capita consumption of lard (pounds).....	13.1	11.1	10.5
Average dressed weight of hogs (pounds).....	173.8	168.1	167.8
Average price of hogs at Chicago.....	\$10.26	\$8.46	\$10.02
Hog-corn ratio (bushels of corn equal in value to 100 pounds of hogs).....	11.4	10.0	9.7

low level in 1935, and recovered but slowly during the next two years. Since October 1937, however, the ratio has been very favorable for hog feeding, averaging 14.8 for the past 12 months. This accounts for the sharp increase in hog numbers in 1938. Prospective corn prices as indicated by the December futures for 1938 corn point to further increases in the 1939 spring pig crop.

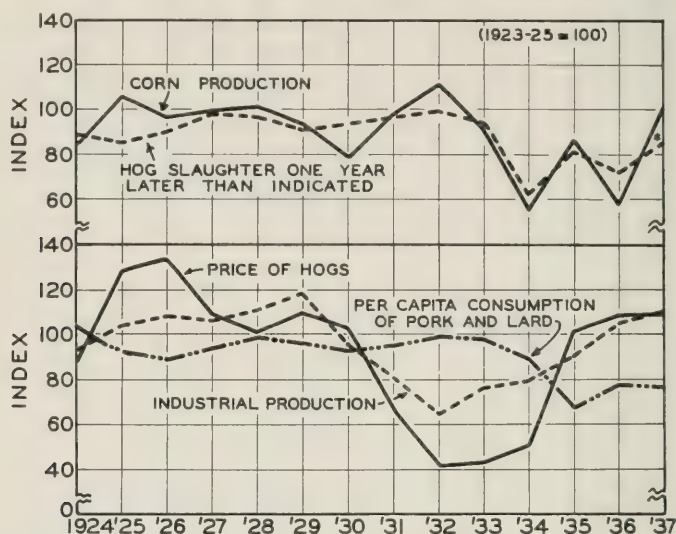


FIG 1.—CORN PRODUCTION, TOTAL HOG SLAUGHTER, INDUSTRIAL PRODUCTION, PER CAPITA CONSUMPTION OF PORK AND LARD, AND THE PRICE OF HOGS, 1924-1937 (*1938 ESTIMATED)

A close relationship exists between the production of corn in the United States and the total slaughter of hogs one year later. Industrial production and the supply of hogs are two major factors in determining the price of hogs. Industrial production and export demand declined sharply from 1929 to 1932, the total slaughter of hogs was large, and therefore prices dropped drastically.

The per capita consumption of hogs is determined by hog production, and is little influenced by changes in demand as measured by industrial production. The price of hogs adjusts to a level which will permit the consumption of that portion of the production which is not exported.

Hog producers in the United States are willing to produce enough pork and lard for normal domestic consumption, and for any export trade available. They are not interested, however, in a production which will seriously depress hog prices. A brief review of the facts concerning domestic consumption and exports of pork and lard for past years will indicate the approximate needs for the period that lies ahead.

For the years 1924-29 the average annual net exports of pork were 468 million pounds, and of lard 800 million pounds. The average population of the United States was 117.4 million persons, the per capita consumption of pork 69.3 pounds, and the per capita consumption of lard 13.1 pounds. In 1937 the population had increased to 129.3 million, but the net exports of pork had dropped to 2.8 million pounds and lard to 103 million pounds. There has been, therefore, a decline in net exports of 465 million pounds of pork and 697 million pounds of lard. The increase of 11.9 million people in the United States over the average of the period, 1924-29, will provide a market for 824.7 million pounds of pork and 155.9 million pounds of lard, assuming the same average per capita consumption. When the losses in the export market are balanced against the gains in the domestic market

there remains a net gain of 360 million pounds of pork, but a net loss of 541 million pounds of lard. For each hog we kill, we get about 125 pounds of pork and 34 pounds of lard. At this rate the gain in pork is equivalent to 2.9 million hogs and the loss in lard is equivalent to 16 million hogs. In other words to furnish each person in the United States the same amount of pork as was used from 1924-29, and to export as much as was exported in 1937, we need to save about 80 million pigs, have a federally inspected slaughter of about 50 millions, and a total slaughter of 72 millions. The number of hogs needed to furnish a similar quantity of lard would be only 60 million pigs saved, 30 millions for inspected slaughter, and 53 millions for total slaughter. Exports of pork and lard were at a very low level in 1937, and are likely to expand somewhat as hog numbers increase. Although many people in Europe would buy our pork and lard if trade restrictions were removed, no large expansion in export trade is now in prospect. With increasing competition from soybean and other vegetable oils the per capita consumption of lard may not increase to the old level of 13.1 pounds a year, unless lard prices are severely depressed.

Farmers are definitely faced with this problem: In the United States two people in a year eat the pork from one hog, while three people are required to consume the lard. Unless we get an export market for our lard, or produce less lard per hog, lard prices will be unduly depressed when the number of hogs in the United States increases sufficiently to provide a normal consumption of pork. When lard prices fall below the live price of hogs, the presence of excess lard in the carcass will depress the price of hogs. A decline of six cents a pound in the value of lard would lower the value of the average hog about two dollars.

At any given time the total amount of money received by farmers for hogs is determined largely by the level of industrial production. The price per pound therefore depends in turn upon the number of hogs sold. The number of hogs sold in any year is influenced materially by the size of the corn crop for the previous year. The level of corn production is therefore of major importance in determining the volume of hog production and the price of hogs. (Fig. 1.)

There are three things which farmers may do about this situation: (1) through acreage control, influence the average level of corn production; (2) produce less lard per hog; (3) influence governmental agencies to reduce trade restrictions which hamper the exports of pork and lard.

Each individual farmer may easily change the amount of lard produced per hog by changing the weight at which hogs are marketed. Dr. W. E. Carroll of the Department of Animal Husbandry is authority for the statement that the 50 pounds of weight added to a hog to increase the liveweight from 225 to 275 pounds is 70 percent fat. While the lower than average per capita consumption of pork and lard in 1937 was primarily because of fewer hogs produced, the average dressed weight of hogs was 6 pounds less in 1937 than for the period 1924-29.

P. E. JOHNSTON

AN INTERPRETATION OF THE PRESENT CORN SITUATION

Basic to the corn market are supplies and changes in supplies. The facts regarding the 1937 supply and disappearance of corn are:

Crop.....	2,644 million bushels
Carryover Oct. 1, 1937.....	61
Total supply.....	2,705
Carryover Oct. 1, 1938.....	352
Disappearance.....	2,353
Exports to Oct. 1.....	135
Domestic disappearance.....	2,228 million bushels

Omitting changes in supplies in trade channels which are not important between these two years, we used up in 1937-38 2,353 million bushels of corn, and had a carryover of 352 million bushels. Of the disappearance, 135 million was for an unusual use:—for exports.

What are the facts for the 1938 crop? The crop is smaller, the carryover and supply are larger. The figures are:

Crop (Oct. 1 estimate).....	2,459 million bushels
Carryover Oct. 1, 1938.....	<u>352</u>
Total supply.....	2,811 million bushels

We have about 100 million bushels more corn than we had last year. What will happen to utilization during the coming year? This question is of vital importance in estimating what will happen to corn prices during the next 12 months.

About 90 percent of our corn is fed to livestock. On that basis the quantity fed to livestock from the 1937 supply was about 2,000 million bushels. It is estimated by the U. S. Department of Agriculture that there are about 5 percent more grain-eating animals on farms than a year ago. These will increase feed demands by 100 million bushels and make total domestic consumption about 2,328 million bushels.

This would leave a surplus available for carryover and export of:

Supply.....	2,811 million bushels
Estimated use in this country.....	<u>2,328</u>
For carryover and export.....	483 million bushels

Argentina harvested a short crop of corn last spring and will not have enough corn to supply the import needs of Europe this winter. Hence the United States will again export corn as was the case last winter. But unless a poor crop is harvested in Argentina next spring our exports should be finished by May 31, 1939. Up to that date in 1938 the United States had exported about 84 million bushels. Assuming the same rate of exports this year and deducting this from the quantity available for carryover and export leaves a theoretical carryover at the end of next year of 400 million bushels or about 50 million more than this year.

The assumption that there will be more livestock is sound; the present ratios between livestock and grain prices will stimulate expansion. How much expansion in livestock numbers would be needed to cut the carryover to a figure where it would cease to depress prices? Based on past experience, a carryover of 200 million bushels would be liberal. To cut our carryover to that point would require a disappearance as follows:

Supply (1938 crop and carryover).....	2,811 million bushels
Exports (estimated).....	<u>84</u>
Difference.....	2,727
Carryover (desired).....	<u>200</u>
Disappearance (estimated).....	2,527
Commercial (estimated).....	<u>228</u>
Necessary to use on farms.....	2,299 million bushels

This would require an increase of 299 million bushels over that used in the last year or a 15 percent increase. One-third of this amount is already accounted for by the increase in livestock numbers. Assuming corn crops of the size of the 1938 crop—which is not a heavy national crop—some such increase in livestock

is necessary to establish a fundamental balance in Corn-Belt agriculture and to correct the unbalanced situation caused by the liquidation in livestock brought on by the 1934 drouth.

If ordinary economic forces were in operation such an expansion in livestock production would be automatic because of the stimulus of cheap corn and favorable feeding ratios. In fact, we might assume that the stimulus would be so great that livestock expansion would be too rapid and corn prices would go high in relation to livestock prices.

But at present we have a new and unknown factor: loans to cooperators in the A.A.A. programs which fix a minimum price to them that is substantially above the market price. Apparently around 750,000,000 bushels of corn will be eligible for loans and undoubtedly loans will be secured on a substantial volume because of the wide difference in price between the loan and the market price. How will this affect the use of corn? Will it check the desired expansion in livestock numbers? It will probably act as a brake on the increase for many people will cease to worry about finding an outlet for their corn when they have in effect sold it at a satisfactory price.

There are times when it is highly desirable to have a price for corn which puts a brake on livestock numbers. What is needed at this time in order to establish an essential balance between corn and livestock supplies is an accelerator and not a brake.

L. J. NORTON

WHOLESALE PRICES OF MARKET MILK, CONDENSED MILK, AND CHEESE, AS RELATED TO BUTTER PRICES

All organized milk markets in Illinois base prices for milk to be manufactured upon condensery or butter prices. In addition, five markets, Chicago, St. Louis, Peoria, Rockford, and Bloomington, also sell class I or base milk to dealers at agreed upon premiums above condensery prices which in turn are based largely upon butter prices. Many dairymen ask: Why is so much importance placed upon butter prices in arriving at prices of market milk?

Prices paid to producers for milk to be condensed or made into cheese or ice cream necessarily must be kept closely in line with butter prices because: (1) butter constitutes a large proportion of the total volume of milk manufactured,

TABLE 2.—UTILIZATION OF MILK PRODUCED IN THE UNITED STATES¹

	Percent of total
Milk and Cream.....	41.3
Butter.....	42.2
Cheese.....	5.9
Condensed Milk.....	4.5
Ice Cream.....	2.3
Fed Calves and Other.....	3.8
Total.....	100.0

¹From U. S. D. A. Bureau of Agricultural Economics average 1934-1936.

and (2) it is relatively easy to shift milk from one manufacturing use to another.

Studies have shown that more than two-fifths of all milk produced is manufactured into butter (Table 2). In comparison, 5.9 percent is made into cheese, .5 percent is condensed, and 2.3 percent is made into ice cream; of all manufactured milk 77 percent is made into butter.

Shifting of milk from one manufactured use to another is relatively easy in most dairy regions because of nearness of condenseries, creameries, and cheese factories. Many plants are equipped to manufacture both butter and cheese, while some are equipped to manufacture condensed milk also.

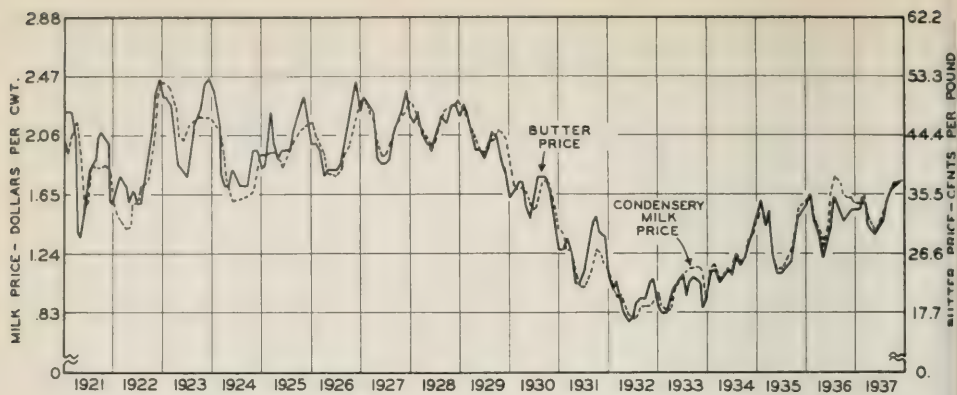


FIG. 2.—AVERAGE PRICES PAID TO PRODUCERS FOR 3.5 PERCENT MILK AT CONDENSERIES IN THE EAST NORTH CENTRAL STATES COMPARED WITH PRICES OF 92-SCORE BUTTER AT CHICAGO, 1921-1937

(Data for Figures 1 and 2 from U. S. Bureau of Agricultural Economics.)

That prices paid to producers for milk condensed or made into cheese have kept closely in line with butter prices is shown in Figures 2 and 3. The correlation between prices paid producers at condenseries for 3.5 percent milk in the East North Central States and the prices of 92-score butter at Chicago, by month from 1921 to 1937, was .96. That between prices of American Twins Cheese at Wisconsin and of Chicago butter prices from 1923 to 1937 was .96. Since perfect correlation is 1.00, these coefficients indicate a high degree of relationship between prices of condensery milk and butter and those of cheese and butter.

From 1921 to 1937 the prices paid to producers at condenseries in the East North Central States averaged \$1.66 per 100 pounds of 3.5 percent milk, and Chicago butter prices averaged 36 cents. The butter price multiplied by 3.5 (the butterfat content of milk) gives \$1.26, an average of 40 cents per 100 pounds, or 32 percent more than the computed butter value of the milk. This agrees closely with a skim milk allowance of 30 percent used in the federal formula as a basis for determining minimum condensery prices. From 1933 to 1937 prices paid for condensed milk averaged 33 percent higher than the computed butter value of the milk.

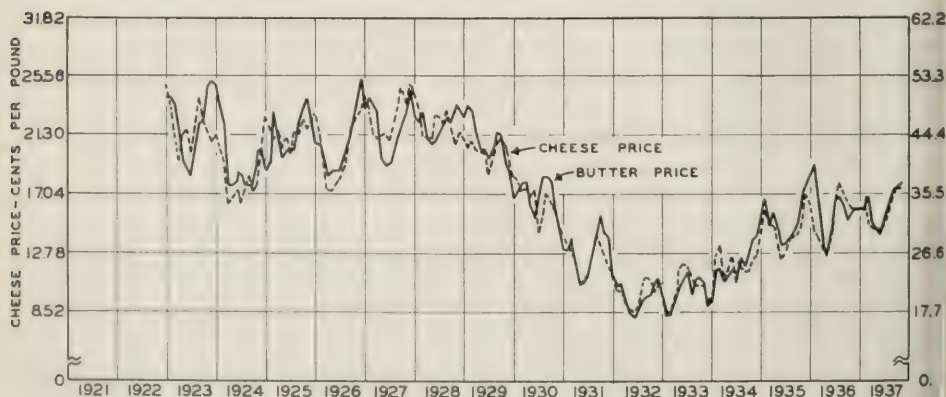


FIG. 3.—AVERAGE PRICES OF AMERICAN TWINS CHEESE AT WISCONSIN COMPARED WITH PRICES OF 92-SCORE BUTTER AT CHICAGO, 1923 TO 1937

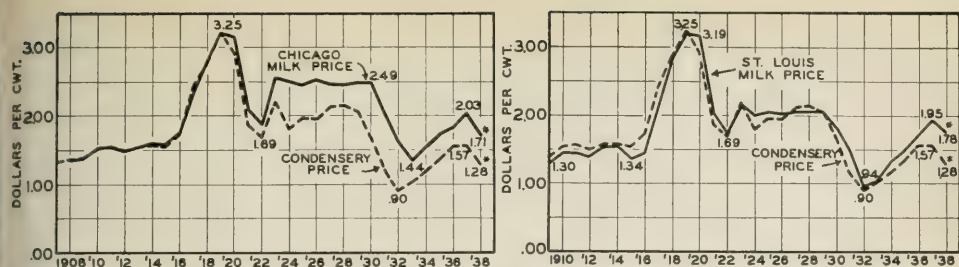


FIG. 4.—AVERAGE NET PRICES RECEIVED FOR 3.5 PERCENT MILK IN THE COUNTRY PLANT AREAS OF ST. LOUIS AND CHICAGO, COMPARED WITH CONDENSERY PRICES IN THE EAST NORTH CENTRAL STATES (*1938 IS 8 MONTHS AVERAGE)

(St. Louis prices as reported by the Milk Market Administration. Chicago prices as reported by the Pure Milk Association. Condensery prices as reported by the U. S. Bureau of Agricultural Economics.)

Prices paid producers for market milk must be kept fairly well in line with those paid at condenseries, creameries, or cheese factories, because: (1) milk manufactured and sold on the basis of butter prices, constitutes a substantial proportion of the total volume marketed in every fluid market. Usually surplus in excess of fluid needs makes up from 30 to 50 percent of the total volume of milk sold. (2) Too high market milk prices tend to flood the market, while producers will turn to condenseries or other outlets if market milk prices are too low.

The close relationship which has existed between country plant prices for 3.5 percent milk in the St. Louis and Chicago milksheds and the prices paid to producers for 3.5 percent milk at condenseries in the East North Central States is shown in Figure 4.

In the St. Louis market from 1909 to 1929, dairymen received an average price of \$1.96 per 100 pounds of 3.5 percent milk as compared with \$1.98, the average condensery price. From 1930 to 1937, the country plant price for market milk averaged \$1.48 and the condensery price \$1.31. In 1938, the decline in butter prices caused a decline in both condensery and market milk prices. For the first eight months of 1938, the country plant price for market milk averaged \$1.78 and the condensery price, \$1.28. The 50-cent premium received in 1938 by the St. Louis shippers has been paid to cover extra costs resulting from added quality requirements, so as to insure a production of milk sufficient to meet market needs.

In the Chicago market from 1907 to 1919, the country plant price received by dairymen averaged \$1.91 per 100 pounds of 3.5 percent milk and the condensery price, \$1.90. Since 1919, producers have received a premium above the condensery price. From 1920 to 1929, this averaged 38 cents per 100 pounds. From 1933 to 1937, the premium again averaged 38 cents, though both series of prices were at a considerably lower level than in 1920-29. For the first eight months of 1938, the premium has averaged 43 cents per 100 pounds of milk. R. W. BARTLETT

¹⁻¹²The first source is for annual data; the second is for current data from which tables may be brought o date.

¹Survey of Current Business, 1936 supplement, U.S. Dept. of Commerce; subsequent monthly issues. Same as footnote 1. ²Illinois Crop and Livestock Statistics, Circular 438 (1937); monthly mimeographs of Statistical Tables for Illinois Crop Report, converted from 1910-14 = 100 to 1924-29 = 100 by multiplying by .7151.

³Agricultural Situation, Bureau of Agricultural Economics, U.S.D.A.; Agricultural Situation, converted from 1910-14 = 100 to 1924-29 = 100 by multiplying by .6486. ⁴Calculated from data furnished by Bureau of Agricultural Economics; Survey of Current Business, seasonally adjusted. ⁵Calculated by Department of Agricultural Economics, University of Illinois, seasonally adjusted. Data from Farm Income, Bureau of Agricultural Economics; B.A.E. monthly mimeograph. Receipts from Sale of Principal Farm products (government payments not included). ⁶Obtained by dividing Index of Illinois Farm Income (column 6) by Index of Prices Paid by Farmers (column 4).

⁷Monthly Indexes of Non-Agricultural and National Income, Supplement, August, 1937, B.A.E.; Price and Demand Situation, or Agricultural Situation. ⁸Survey of Current Business, 1936 Supplement; subsequent monthly issues, unadjusted for seasonal variation. ⁹Federal Reserve Bulletin of Federal Reserve Board, September, 1933 and subsequent issues; survey of Current Business, seasonally adjusted. ¹⁰Preliminary estimate. ¹¹Illinois Crop and Livestock statistics, Cir. 438; Monthly price releases, State Agricultural Statistician.

TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural income ⁸	Factory payrolls ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S.		Illinois			
	All commodities ¹	Farm products ²			In money ⁵	In money ⁶					In purchasing power^{7}
Base period.....	1926	1926	1924-29	1924-29	1924-29	1924-29	1924-29	1924-29	1923-25	1923-25
1929.....	95	105	104	99	103	103	104	107	109	119
1930.....	86	88	89	94	83	87	93	100	88	96
1931.....	73	65	62	80	58	58	72	86	67	81
1932.....	65	48	41	69	43	43	62	68	46	64
1933.....	66	51	45	71	49	51	72	63	49	76
1934.....	75	65	61	80	57	55	69	72	63	79
1935.....	80	79	82	81	64	65	80	77	71	90
1936.....	81	81	86	80	75	82	102	87	82	105
1937.....	86	86	96	84	81	86	102	96	98	110
1938 Jan.....	81	72	74	82	70	85	104	90	72	80
Feb.....	80	70	71	82	62	79	96	88	73	79
Mar.....	80	70	72	81	67	80	99	88	73	79
Apr.....	79	68	70	81	70	85	105	87	71	77
May.....	78	68	69	81	68	88	109	86	69	76
June.....	78	69	70	80	72	84	105	85	67	77
July.....	79	69	74	80	83	80	101	86	67	83
Aug.....	78	67	66	79	72	77	97	87	73	88 ¹¹
Sept.....	78 ¹¹	68 ¹¹	69	79	.....	.....	.....	.....	.....	.....

TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS¹²

Product	Yearly average			Current months			
	1924-29	1936	1937	June	July	Aug.	Sept.
Corn, bu.....	\$.79	\$.75	\$.94	\$.49	\$.50	\$.44	\$.44
Oats, bu.....	.41	.31	.39	.23	.22	.18	.20
Wheat, bu.....	1.27	1.00	1.10	.68	.62	.54	.55
Barley, bu.....	.65	.74	.84	.51	.46	.40	.44
Soybeans, bu.....	1.77	.94	1.20	.80	.80	.70	.65
Hogs, cwt.....	9.80	9.70	10.11	8.40	9.20	8.00	8.60
Beef cattle, cwt.....	8.52	7.51	8.93	7.80	8.90	8.10	8.20
Lambs, cwt.....	12.00	8.74	9.58	8.20	8.30	7.50	7.60
Milk cows, head.....	78.61	55.00	61.00	59.00	62.00	60.00	58.00
Veal calves, cwt.....	11.25	8.49	9.43	8.40	8.60	8.70	9.40
Sheep, cwt.....	6.35	3.66	4.09	3.40	3.10	3.10	3.20
Butterfat, lb.....	.42	.31	.32	.22	.23	.28	.29
Milk, cwt.....	2.31	1.80	1.92	1.50	1.50	1.55	1.60
Eggs, doz.....	.27	.21	.20	.16	.17	.17	.22
Chickens, lb.....	.21	.16	.16	.16	.15	.14	.14
Wool, lb.....	.35	.29	.32	.17	.18	.20	.20
Apples, bu.....	1.36	1.15	1.18	.90	.85	.90	.95
Hay, ton.....	1.27	13.33	12.41	7.80	6.30	5.90	6.40
Potatoes, bu.....	1.44	1.22	1.12	1.10	.75	.55	.60

¹²For sources of data in tables see previous page.

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 Director, Extension Service in Agriculture and Home Economics, University of Illinois

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ILLINOIS FARM ECONOMICS

Department of Agricultural Economics, College of Agriculture and Agricultural Experiment Station, in cooperation with the Extension Service in Agriculture and Home Economics, University of Illinois

R. C. Ross, Editor

November, 1938

Number 42

CURRENT ECONOMIC DISCUSSIONS ON THE AIR

The following special Agricultural Economics broadcasts are a part of the programs in Agriculture and Home Economics which are broadcast regularly by the College of Agriculture. The Agricultural Programs are daily except Saturday at 12:30 to 1:00 P.M. The Home Economics Programs are Monday, Wednesday, and Friday, 9:00-9:15 A.M., Station W I L L, 580 Kilocycles.

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December 23—"Trends in Agricultural Policy in Various Countries," C. L. STEWART, G. L. JORDAN.

December 30—"Farm Accounts," M. P. GEHLBACH.

HARVESTING COSTS REDUCED BY THE USE OF MECHANICAL CORN PICKERS

In 1937 the average cost of husking corn with two-row mechanical pickers in East-Central Illinois was 2.3 cents a bushel. Thirty pickers of the tractor-mounted type and 66 of the pull type were studied. During the season the 96 machines husked an average of 190 acres of corn which averaged 62.2 bushels an acre (Table 1). There was little difference in the amount of corn husked or the rate of husking for the two types of pickers.

The chief items of expense in operating a corn picker are depreciation, labor, tractor use and fuel,—these items constituting more than 80 percent of the total cost (Table 2). Many of the pull-type pickers were operated with three-plow tractors and therefore showed a higher tractor and fuel cost than did the mounted machines. Expense for depreciation and fire insurance, however, made up a greater percentage of the total cost with mounted pickers since they were estimated to be shorter lived and entailed a greater fire hazard. The average acre cost of husking with the 66 pull-type pickers was \$1.40 compared with \$1.45 for the mounted type.

Advantages of pull-type over mounted pickers are: the tractor can be used for other work such as combining; less machinery and dust surrounds the operator; less weight is placed on the front wheels of the tractor; and the danger of fire is less.

Advantages of the mounted picker are: it is unnecessary for fields to be

TABLE 1.—ACRES OF CORN HUSKED AND RATE OF HUSKING, TWO-ROW MECHANICAL PICKERS, EAST-CENTRAL ILLINOIS, 1937

Items	96 pickers	66 pull-type pickers	30 mounted pickers
Average number of acres husked.....	189.7	190.4	188.2
Average number of bushels husked.....	11,800	12,060	11,228
Hours of picker use.....	164.3	167.8	156.6
Average yield, bushels.....	62.2	63.3	59.7
Acres husked per hour.....	1.15	1.13	1.20
Bushels husked per hour.....	71.8	71.9	71.7

TABLE 2. COST BY ITEMS OF HUSKING CORN WITH PULL-TYPE AND MOUNTED PICKERS, EAST-CENTRAL ILLINOIS, 1937

Items	66 pull-type pickers			30 mounted pickers		
	Season cost	Per acre cost	Percent of total	Season cost	Per acre cost	Percent of total
Labor	\$56.85	\$.30	21.2	\$52.81	\$.28	19.4
Fuel.....	33.42	.17	12.5	31.22	.17	11.5
Oil and grease	8.31	.04	3.1	10.95	.06	4.0
Tractor use.....	51.11	.27	19.1	39.77	.21	14.6
Repairs on picker	13.64	.08	5.1	7.93	.05	2.9
Depreciation.....	73.37	.38	27.4	87.76	.47	32.2
Interest on investment.....	19.34	.10	7.2	19.52	.10	7.2
Shelter cost.....	4.79	.02	1.8	4.79	.02	1.8
Fire insurance.....	5.02	.03	1.9	15.60	.08	5.7
Taxes and liability insurance.....	2.07	.01	0.7	2.07	.01	0.7
Total.....	\$267.92	\$1.40	100.0	\$272.42	\$1.45	100.0

TABLE 3. ACRE AND BUSHEL COSTS OF HARVESTING CORN YIELDING 62.2 BUSHEL AN ACRE, MACHINE AND HAND METHODS, EAST-CENTRAL ILLINOIS, 1937

Items	Machine harvesting		Hand harvesting
	Husking	Cribbing	
Labor	\$.30	\$.38	\$3.11
Fuel, oil, and grease.....	.23		...
Tractor use.....	.25	.02	...
Picker costs .....	.64		...
Horse labor.....		.29	2.24
Wagon use.....		.05	.14
Elevator use.....		.48	.48
Cost an acre.....	\$1.42	\$1.22	\$5.97
Cost a bushel (cents).....	2.3	2.0	9.6
Total harvesting cost an acre.....	\$2.64		\$5.97
Harvesting cost a bushel (cents).....	4.3		9.6

opened by hand; corn that is leaning badly can be husked from one side of the field; side draft on the tractor is eliminated; keeping on the row is less difficult and the picker can be placed in the shed more easily at night.

The combined cost for husking and cribbing corn with two-row pickers was \$2.64 an acre, or 4.3 cents a bushel. The cost for husking and cribbing an equivalent amount of corn by hand would have been \$5.97 an acre, or 9.6 cents a bushel (Table 3). This difference represents an actual saving because of the introduction of the corn picker only if the corn is hired husked by hand.

As the acreage of corn husked increased, the cost per acre decreased since the fixed overhead costs were spread over more acres (Fig. 1). Probably the most important factor influencing the bushel cost of harvesting was the yield of corn (Fig. 1).

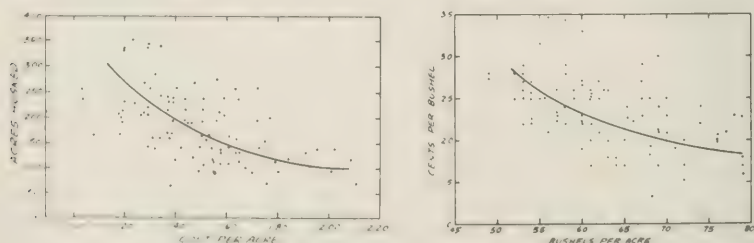


FIG. 1.—THE COST PER ACRE DECREASES AS THE NUMBER OF ACRES INCREASES. SIMILARLY, THE COST PER BUSHEL DECREASES AS THE YIELD OF CORN INCREASES

Fifty-two of the pickers were used for custom work, husking an average of 112 acres in addition to that on the home farm. Rates charged for custom work ranged from \$2 to \$3 an acre or from 4 to 5 cents a bushel. The man hiring the picker hauled and cribbed his own corn. It is evident that with a cost of 2.3 cents a bushel for husking, those operators who did custom work at 4 or 5 cents a bushel had a profit for their work.

Copies of the complete report are obtainable from the Department of Agricultural Economics, University of Illinois.

M. P. GEHLBACH

CONTINUED UPWARD TREND IN ILLINOIS LAND VALUES¹

Farm land values in Illinois in 1938 are about one-third higher than in 1933. During the same period land values in the nation have increased only about one-sixth over the 1933 values. This increase in values both in the United States and in Illinois brings the price of land back to 71 percent of the average prices for the period 1925-29.

Although land values did not reach the lowest point till 1933, cash income from marketings for the United States as a whole and for Illinois were lowest in 1932. In Illinois and for the nation cash income from marketings was nearly twice as high in 1937 as in 1932. This increase amounted to 90 percent in the United States and 100 percent in Illinois. If federal benefit payments are added, the percentage increase for the United States is raised to 99 percent and for Illinois to 107 percent of the 1932 income (Fig. 2).

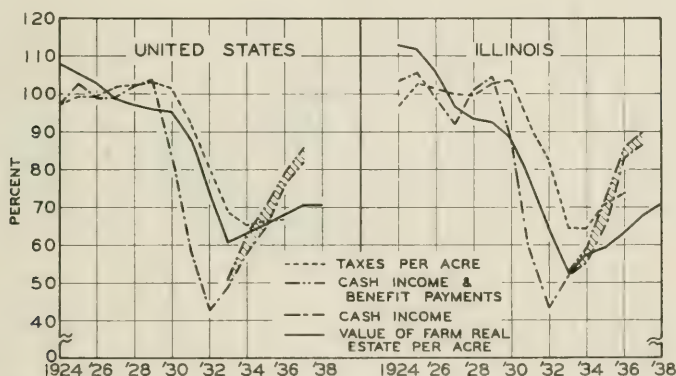


FIG. 2.—INDEX OF VALUE PER ACRE OF FARM REAL ESTATE AND OF LAND TAXES, AND CASH INCOME FROM FARM MARKETINGS. (ILLINOIS INCOME 1924-28 FROM SALES OF CROPS AND LIVESTOCK)

The changes in land values and in cash income from marketings during recovery may be compared with the years of recession. From 1929 to 1932 cash income from farm marketings in the United States declined 59 percent whereas from 1930 to 1933 land values declined only 37 percent. For Illinois, during the same period, the decrease in income from marketings was 58 percent and the decrease in land values 41 percent. Land values in Illinois declined more than for the United States during the depression from 1930-1933. It is not surprising, therefore, that during the recovery following 1933, Illinois land values would rise more than those for the United States.

In interpreting the behavior of land values in relation to land income, it must be noted that the income shown here is gross rather than net. It may be assumed

¹This analysis is based upon figures collected by the U.S. Department of Agriculture.

that farm land values reflect the net income from the use of land in farm production.

One item entering into the spread between gross and net income from land is farm real estate taxes. Taxes in the United States declined about $\frac{2}{3}$ as much as income from farm marketings from 1929 to 1932. In Illinois taxes declined only $\frac{1}{3}$ as much as income during the same period.

Farm real estate taxes continued their decline to 1934, the second year after cash income reached its lowest point and a year after real estate values were at their lowest. During the period 1934-36 farm real estate taxes in the United States increased slightly, compared to an advance of about $\frac{1}{6}$ in Illinois. In both instances the advance in taxes lagged behind the increase in farm income.

When the period, 1913-38, is examined for 25-year changes in average land values, there are eight states in which recovery has not progressed as far toward the 1913 level as in Illinois. In this state, values in 1938 were still 27 percent below those of 1913.

When the rate of advance in farm real estate prices in Illinois since 1933 is compared with that of other states, it was surpassed in only six states; North Carolina, South Carolina, Mississippi, Alabama, Georgia, and Indiana. When the rate of advance in Illinois since 1935 is similarly compared, it was equalled in Indiana and surpassed only by North Carolina (Fig. 3).

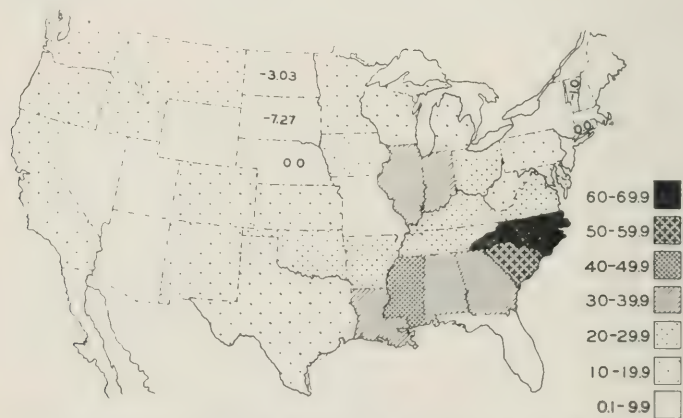


FIG. 3.—INCREASE IN LAND VALUES SINCE 1933 EXPRESSED AS A PERCENT OF CHANGE

While no specific prophecy would be indicated on the basis of the present study, it would seem that even with estimated cash income from 1938 Illinois farm marketings 13 percent below that of 1937 the level of land values will be maintained. If cash income from 1939 marketings were to be equal to those of 1937, it seems likely that, assuming normal costs, land values in Illinois might rule somewhat higher than at present.

C. L. STEWART and R. J. MUTTI

SOYBEAN SITUATION

In marketing their soybean crop, farmers may well give attention to the general economic situation and the prices of soybean products as well as to the size of the crop. The largest soybean crop on record, 54.0 million bushels, was estimated by the U.S. Department of Agriculture in its November report. Weather for harvest was ideal and with the heavy harvest movement the price declined. While many growers sell all their beans at harvest the question is

often raised: Will it pay to hold beans until the winter season? During the last ten years the average Illinois farm price in February and March has been above the average for October and November eight times and below it but once. The median increase has been fifteen cents per bushel. Last year the increase was moderate.

What are the prospects for such an increase during the current year? It would seem that they are a little better than last year although not as good as two years ago.

Some favorable factors in the soybean situation are: (1) Business conditions have been improving since June and the general opinion is that this improvement will continue. (2) The cotton crop is about two-thirds as large as in 1937. The chief competing products with soybean meal and oil are cottonseed meal and oil and the volume of these is directly dependent on the size of the cotton crop. Allowing for the carry-over of cotton seed it is estimated that production of cottonseed meal will be about four-fifths as large as last year. (3) the mill price of soybean oil is lower than that of cottonseed oil and this should encourage heavy consumption of the former in alternative uses. (4) Heavy sales of soybean meal have apparently been made. This will encourage consumption of that product.

Factors which may tend to hold down the price of soybeans are: (1) The expansion in number of hogs will increase the supply of lard. Soybean oil is extensively used in competitive shortenings. (2) Supplies of cereal grains are abundant and prices are low. Under these conditions many farmers will not be careful in use of feed and may use less soybean meal as protein supplement than they would if grains were scarce and high in price. (3) Although the supply of cottonseed meal will be less than last year it is estimated as ten percent larger than in 1936-37 when the price of soybeans advanced so sharply.

During harvest the price of soybeans was adjusted fairly well to prices of meal and oil. Changes in the prices of these products are quickly reflected in the price of soybeans. A change of one cent a pound in the price of oil is equivalent to 8-9 cents per bushel of beans and a change of \$1.00 a ton in the price of meal to about 2.4 cents per bushel of beans.

L. J. NORTON

THE APPLE SITUATION

Are present apple prices in line with supply and demand conditions? What are the prospects for a substantial seasonal rise during the cold storage marketing season? These questions are uppermost in the minds of apple growers who have not disposed of their 1938 crop.

Apple prices paid to growers are dependent upon well defined forces of which four are of primary importance in determining the average seasonal price in the United States. These are:

- (1) Supply of apples available for market.
- (2) Supply of competing fruits (particularly oranges and grapefruit).
- (3) Domestic demand as indicated by consumer purchasing power.
- (4) Foreign demand.

Crop estimate reports of the United States Department of Agriculture as of November 1, indicate this year's crop to be 130,328,000 bushels, which is 61.9 percent of the exceptionally large 1937 crop of 210,673,000 bushels, and 86.5 percent of the 1927-36 average (Table 4).

Production this year is indicated to be relatively small in the central group of states, including Illinois; the crop in the Atlantic coast states is much smaller than last year and a little below average. In the Pacific Northwest production is slightly less than last year and about the same as in the past 6 or 7 years. Washington, the leading apple growing state in the United States, has an indi-

TABLE 4. PRODUCTION OF APPLES BY REGIONS AND SELECTED STATES, AVERAGE 1927-36, ANNUAL 1937 AND 1938

Region or State	Average 1927-36	1937	Indicated 1938	1938 as percentage of average	1938 as percentage of 1937
	<i>1,000 bu.</i>	<i>1,000 bu.</i>	<i>1,000 bu.</i>	<i>percent</i>	<i>percent</i>
Total United States.....	150,728	210,673	130,328	86.5	61.9
North Atlantic.....	38,019	55,989	36,232	95.3	64.7
South Atlantic.....	24,816	39,952	21,939	88.4	54.9
North Central.....	27,507	49,966	20,272	73.7	40.6
South Central.....	6,268	11,450	3,025	48.3	26.4
Pacific Northwest.....	40,821	39,200	38,065	93.2	97.1
Massachusetts.....	2,927	3,465	2,524	86.2	72.8
New York.....	17,125	24,340	16,380	95.6	67.3
New Jersey.....	3,484	5,463	4,067	116.7	74.4
Pennsylvania.....	9,465	16,728	9,338	98.6	55.8
Delaware.....	1,388	2,750	1,771	127.6	64.4
Maryland.....	1,920	2,847	2,118	110.0	74.4
Virginia.....	11,533	18,000	10,080	87.4	56.0
West Virginia.....	5,780	10,004	4,800	83.0	48.0
Ohio.....	6,095	12,636	3,565	58.5	28.2
Illinois.....	4,099	8,960	2,912	71.0	32.5
Michigan.....	7,731	14,432	7,095	91.8	49.2
Missouri.....	2,207	4,214	588	26.6	13.9
Arkansas.....	1,394	2,295	364	26.1	15.9
Idaho.....	4,859	4,960	3,953	81.3	79.7
Washington.....	31,372	30,340	29,970	95.5	98.8
Colorado.....	1,968	1,457	1,982	100.7	136.0

cated 1938 crop of 29,970,000 bushels, compared with 30,340,000 bushels in 1937. Illinois, on the other hand, has a crop this year of only 2,912,000 bushels compared with 8,960,000 bushels in 1937.

The rapid rise in citrus production in the United States in recent years is of much concern to apple growers.

Total grapefruit production for the 1938-39 marketing season was indicated on November 1 at 40,720,000 boxes, compared with the previous record crop of 30,878,000 boxes in 1937-38, and the 1927-36 average of 16,772,000 boxes.

A record crop of oranges also is in prospect. Production from the 1938 bloom for all varieties except California Valencias, was indicated on November 1 at 50,055,000 boxes, compared with 45,551,000 boxes in 1937 and a 1927-36 average of 32,052,000 boxes. No production data are available for Valencias, but this variety will not be an important source of supply until after the apple marketing season.

Increased industrial activity and improvement in general business will be reflected in fruit markets, and as a result the domestic demand for apples is expected to show some improvement during the fall and winter. The importance of domestic demand is indicated in a study by the Bureau of Agricultural Economics in which for the period 1922-37 consumer demand as measured by income of industrial workers was more important in determining prices than was the supply of apples.

Exports of apples declined sharply from 1930 to 1934. In 1930-31 exports were more than 20 million bushels, but in 1934-35 had dropped to 8 million bushels. Because of large supplies and low prices in 1935-36 exports rose to more than 13 million bushels, and in 1937-38 were slightly more than 10 million bushels.

Fruit crops, including apples, are relatively light this year in England and other European countries. For this reason the foreign demand for United States apples may be somewhat better than last season, particularly since the new trade agreement reduces English tariffs on apples by one third. Factors tending to offset the effect of smaller foreign fruit crops, however, are a low level of business activity in foreign countries and a continuation in most countries of import duties and other trade restrictions.

Although the Illinois apple crop is light, this is not the situation in all parts of the country. The United States crop is indicated to be 61.9 percent of last year's crop, and 86.5 percent of the 1927-36 average. The Pacific Northwest has a near normal crop, and supplies in the east are nearer average than in Illinois and the other central states.

The price of apples in Illinois is influenced by competing supplies from western and eastern states. Whether a substantial seasonal rise in apple prices will occur depends on movement from the northwest, amount in cold storage, improvement in consumer purchasing power, and volume of exports. Illinois growers should watch these developments carefully.

The 1938 crop of apples in the United States is similar to that in 1934 in respect to total supplies and their regional distribution. Apple prices during the 1934 crop marketing year failed to make the seasonal rise usually expected in light crop years, because exports dropped to a low point; domestic shipments from the Northwest were heavy because of a large crop and loss of foreign markets; consumer purchasing power was low; the movement into consumption was slow during the late fall months because of high prices and over optimism as to price outlook; and the proportion of the crop stored was high.

In comparing the present marketing season with that of 1934-35, the following differences are noted: demand conditions have improved; industrial activity is higher, and further improvement is expected during the winter; light fruit crops in European countries may result in improved foreign demand; preliminary cold storage holding reports indicate small storage stocks (December 1 cold storage reports will best indicate these supplies). Offsetting these favorable factors is the record crop of citrus fruits, the bulk of which will be marketed during the marketing season for storage apples.

V. A. EKSTROM

New Trade Agreement. For twenty years a world-wide trend toward national self-sufficiency has been evidenced by increasing trade barriers which have tended to reduce trade between nations. Since 1934 the United States has been gradually developing reciprocal trade agreements with various countries designed to prevent increases in tariffs of a wide range of products and to provide for reductions in tariffs on specified products by the nations concerned. The trade agreement signed on November 17 with Great Britain and with Canada is the twentieth in number and the most important of those established. Concessions by Great Britain to our trade include reductions in rates on wheat, lard, rice, apples, pears, dried fruits, canned corn, citrus fruit juices, honey, and certain industrial products. The United States grants reductions on specified textiles, machinery, industrial raw materials, and products. Canada makes reductions on fruits, vegetables, pork, hogs, corn, metal products, office and household machinery. The United States lowers tariffs on Canadian cattle, hogs, pork products, cheese, mill feeds, and seed potatoes. These agreements become effective January 1.

¹⁻¹²The first source is for annual data; the second is for current data from which tables may be brought to date.

¹Survey of Current Business, 1936 supplement, U.S. Dept. of Commerce; subsequent monthly issues. ²Same as footnote 1. ³Illinois Crop and Livestock Statistics, Circular 438 (1937); monthly mimeographs of Statistical Tables for Illinois Crop Report, converted from 1910-14 = 100 to 1924-29 = 100 by multiplying by .7151. ⁴Agricultural Situation, Bureau of Agricultural Economics, U.S.D.A.; Agricultural Situation, converted from 1910-14 = 100 to 1924-29 = 100 by multiplying by .6486. ⁵Calculated from data furnished by Bureau of Agricultural Economics; Survey of Current Business, seasonally adjusted. ⁶Calculated by Department of Agricultural Economics, University of Illinois, seasonally adjusted. Data from Farm Income, Bureau of Agricultural Economics; B.A.E. monthly mimeograph. Receipts from Sale of Principal Farm Products (government payments not included). ⁷Obtained by dividing Index of Illinois Farm Income (column 6) by Index of Prices Paid by Farmers (column 4). ⁸Monthly Indexes of Non-Agricultural and National Income, Supplement, August, 1937, B.A.E.; Price and Demand Situation, or Agricultural Situation. ⁹Survey of Current Business, 1938 Revision; subsequent monthly issues, unadjusted for seasonal variation. ¹⁰Federal Reserve Bulletin of Federal Reserve Board, September, 1933 and subsequent issues; Survey of Current Business, seasonally adjusted. ¹¹Preliminary estimate. ¹²Illinois Crop and Livestock Statistics, Cir. 438; Monthly price releases, State Agricultural Statistician.

TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural income ⁸	Factory payrolls ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S.		Illinois			
	All commodities ¹	Farm products ²			In money ⁵	In money ⁶					In purchasing power^{7}
Base period	1926	1926	1924-29	1924-29	1924-29	1924-29	1924-29	1924-29	1923-25	1923-25
1929	95	105	104	99	103	103	104	107	110	119
1930	86	88	89	94	83	87	93	100	89	96
1931	73	65	62	80	58	58	72	86	68	81
1932	65	48	41	69	43	43	62	68	47	64
1933	66	51	45	71	49	51	72	63	50	76
1934	75	65	61	80	57	55	69	72	64	79
1935	80	79	82	81	64	65	80	77	74	90
1936	81	81	86	80	75	82	102	87	86	105
1937	86	86	96	84	81	86	102	96	102	110
1938 Jan.	81	72	74	82	70	85	104	90	75	80
Feb.	80	70	71	82	62	79	96	88	77	79
Mar.	80	70	72	81	67	80	99	88	77	79
Apr.	79	68	70	81	70	85	105	87	75	77
May	78	68	69	81	68	88	109	86	73	76
June	78	69	70	80	72	84	105	85	71	77
July	79	69	74	80	83	80	101	86	71	83
Aug.	78	67	66	79	72	77	97	87	77	88
Sept.	78	68	69	78	74	73	94	...	81	90 ¹¹
Oct.	78 ¹¹	67 ¹¹	64 ¹¹	78	...	...	...	...	...	...

TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS¹²

Product	Yearly average			Current months			
	1924-29	1936	1937	July	Aug.	Sept.	Oct.
Corn, bu.	\$.79	\$.75	\$.94	\$.50	\$.44	\$.44	\$.36
Oats, bu.	.41	.31	.39	.22	.18	.20	.20
Wheat, bu.	1.27	1.00	1.10	.62	.54	.55	.56
Barley, bu.	.65	.74	.84	.46	.40	.44	.43
Soybeans, bu.	1.77	.94	1.20	.80	.70	.65	.60
Hogs, cwt.	9.80	9.70	10.11	9.20	8.00	8.60	7.40
Beef cattle, cwt.	8.52	7.51	8.93	8.90	8.10	8.20	7.80
Lambs, cwt.	12.00	8.74	9.58	8.30	7.50	7.60	7.30
Milk cows, head	78.61	55.00	61.00	62.00	60.00	58.00	60.00
Veal calves, cwt.	11.25	8.49	9.43	8.60	8.70	9.40	9.20
Sheep, cwt.	6.35	3.66	4.09	3.10	3.10	3.20	3.30
Butterfat, lb.	.42	.31	.32	.23	.24	.23	.23
Milk, cwt.	2.31	1.80	1.92	1.50	1.55	1.60	1.65
Eggs, doz.	.27	.21	.20	.17	.17	.22	.24
Chickens, lb.	.21	.16	.16	.15	.14	.14	.13
Wool, lb.	.35	.29	.32	.18	.20	.20	.20
Apples, bu.	1.36	1.15	1.18	.85	.90	.95	1.05
Hay, ton.	1.27	13.33	12.41	6.30	5.90	6.40	6.30
Potatoes, bu.	1.44	1.22	1.12	.75	.55	.60	.60

¹⁻¹²For sources of data in tables see previous page.

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 Director, Extension Service in Agriculture and Home Economics, University of Illinois

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ILLINOIS FARM ECONOMICS

Department of Agricultural Economics, College of Agriculture and Agricultural Experiment Station, in cooperation with the Extension Service in Agriculture and Home Economics, University of Illinois

R. C. Ross, Editor

December, 1938

Number 43

CURRENT ECONOMIC DISCUSSIONS ON THE AIR

The following special Agricultural Economics broadcasts are a part of the programs in Agriculture and Home Economics which are broadcast regularly by the College of Agriculture. The Agricultural Programs are daily except Saturday at 12:30 to 1:00 P.M. The Home Economics Programs are Monday, Wednesday, and Friday, 9:00-9:15 A.M., Station W I L L, 580 Kilocycles.

January 6—"News from the Music and Drama Tryouts," RALPH MCKENZIE.

January 13—"Highlights from the Farm and Home Week Agricultural Economics Program," G. W. FREEMEYER, F. C. JONES, G. P. COLLINS, G. T. HUDSON.

January 20—"The Current Economic Situation as It Affects the Farmer," E. J. WORKING, F. G. WARREN.

January 27—"The Grade of Beef Sold in Illinois," R. C. ASHBY, SLEETER BULL, R. J. WEBB.

SOME FEATURES OF THE RECENT TRADE AGREEMENT WITH CANADA AND THE UNITED KINGDOM

On January 1, 1939, a trade agreement between the United States and the United Kingdom and various British possessions, and a revised trade agreement between Canada and the United States will go into effect. These agreements represent important steps in the present program of the United States Government to remove barriers to trade with foreign countries. To date twenty such agreements have been made.

These two agreements contain hundreds of individual items which involve reductions in import duties or other barriers to trade imposed by the countries concerned. They will affect Illinois agriculture in three ways:

1. Expand outlets for products on which concessions are granted;
2. Increase competition in connection with products on which our government grants concessions;
3. Increase markets for farm products by the stimulus given to business activity in this and foreign countries. Since the bulk of the produce of Illinois agriculture is used by American consumers, the stimulus to trade in various lines of American industry and the resulting increase in payrolls and consuming power for foodstuffs will probably be the most important benefit to farmers.

Concessions by the United Kingdom. The United Kingdom is a deficit country for foodstuffs and is the largest importing country for farm products produced in the temperate zones. Hence most of the direct increase in trade in farm products will result from concessions made by the United Kingdom. The most important of these affecting Illinois products and the values of these products imported by the United Kingdom from this country in 1937 follow:

Product	Changes in duty	1937 imports from United States
Wheat.....	6 cents per bushel, eliminated.....	\$8,312,000
Hams.....	No duty before agreement. Minimum quota of 56,000,000 pounds imports from United States established.....	7,205,000
Apples.....	Reduced by about 15 cents per bushel.....	6,076,000
Lard.....	Ten percent of value, eliminated.....	9,073,000

Concessions by Canada. Canada also reduced duties on a number of farm products which are produced in Illinois but since she is largely or wholly self-sufficient in these items, the major effect will probably be to permit reciprocal trade in local or seasonal surpluses—a highly desirable thing.

Import duties levied by Canada on some of these products before the first agreement (1935), in the first agreement (1936-1938) and in the new agreement (1939) together with amounts of such products imported from the United States in 1937 are:

Product	Rate of duty levied by Canada			1937 imports from the United States
	1935	1936-1938	1939	
	(cents)	(cents)	(cents)	
Hogs (per pound)	3	1½	1	
Bacon, hams, etc. (per pound)	5	1¾	1¾	\$266,000
Eggs (per dozen)	10	10	5	12,000
Soybeans (per pound)	2	0	0	9,000
Corn (per bushel)	25	20	10	98,000
Oats (per bushel)	16	9	8	1,896,000
Apples (per \$ of value)	20	15	15	250,000

Concessions by the United States. Among products in which Illinois farmers have a direct interest, the duties levied, and quotas allowed by our government and imports from Canada in 1937 are:

Product	Rate levied by U. S.			1937 imports from Canada
	1935	1936-1938	1939	
	(cents)	(cents)	(cents)	
Cattle, weighing less than 200 pounds (per pound) ¹	2½	1½	1½	\$1,246,000
Cattle, weighing 700 pounds or more (per pound) ²	3	2	1½	11,006,000
Dairy cows (per pound) ³	3	1½	1½	425,000
Hogs (per pound)	2	2	1	1,525,000
Fresh pork (per pound)	2½	2½	1½	2,583,000
Bacon, hams, etc. ⁴ (per pound)	3¼	3¼	2	(not available)
Chickens, dressed (per pound)	10	6	6	7,000
Eggs (per dozen)	10	5	5	3,000
Cream (gallon) ⁵	56.6	35	28.3	204,000
Barley (per bushel)	20	20	15	9,132,000
Oats (per bushel)	16	16	8	25,000
Bran, shorts, and wheat unfit for human consumption (per \$ of value)	10	10	5	6,372,000
Alfalfa seed (per pound)	8	4	4	642,000
Alsike clover seed (per pound)	8	4	4	229,000
Red clover seed (per pound)	8	5 ⁶	4	441,000
Sweet clover seed (per pound)	4	2	2	579,000

¹Number at reduced duty was fixed at 51,933 annually in original agreement and at 100,000 in new agreement.

²Number at reduced rate was fixed at 155,799 head annually in original agreement and at 225,000 head annually but not more than 60,000 in any quarter year period in new agreement. The new quota equals about 1.5 percent of our annual cattle slaughter.

³Number at reduced rate fixed at 20,000 annually in original agreement, no limit in new agreement.

⁴This does not apply if cooked, boned, canned, or made into sausage.

⁵Reduced duty applies to only 1,500,000 gallons in both agreements.

⁶Reduced to 5 cents by the French trade agreement, effective June 15, 1936.

The quota provisions which limited imports to a small percentage of our domestic supply are continued for cattle and cream but are dropped for dairy cows. Quotas are also fixed for the quantities of whole milk, potatoes, and fish on which reduced duties applied. In order to prevent the full quota of cattle from coming in during a short period of the year and thus disturbing the orderly marketing of cattle a maximum quota for each quarter-year period is fixed. This is a new feature in the 1938 agreement.

Effects of These Agreements. The direct effects of these agreements will be to stimulate our exports to England of items like wheat, lard, and hams when surplus supplies are available here and of certain products to Canada when supplies are short there as oats were in 1937. Likewise imports of Canadian cattle, whea

feeds, and barley to this country will be stimulated. The importation of hogs and pork from Canada in 1937 was probably unusual as the result of short supplies and high prices here after the 1936 drought.

Since Illinois agriculture is distinctly commercial and therefore dependent on active and vigorous markets and since the trade agreements will encourage trade upon which all markets depend, the long run effects of these agreements will be desirable.

L. J. NORTON

A NEW INDEX OF INDUSTRIAL PRODUCTION PER CAPITA

One of the most important indexes of business conditions and of domestic demand for farm products is the index of industrial production which is published monthly by the Board of Governors of the Federal Reserve System. It

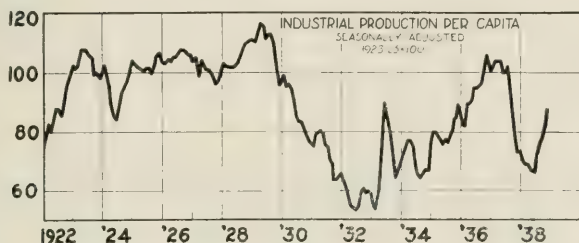


FIG. 1.—BUSINESS CONDITIONS 1922 TO DATE, AS MEASURED BY THE INDEX OF INDUSTRIAL PRODUCTION PER CAPITA

has the disadvantage, however, that a given level of industrial production today does not indicate the same degree of business prosperity as it did 15 years ago. As the population of a country increases, both the needs of the country and its ability to produce increase. In order to supply an index which takes account of changing population, the Department of Agricultural Economics has constructed an index of per-capita industrial production.

To adjust the industrial production index for population changes—that is, to place it on a per-capita basis—it is necessary to divide it by a population index. Such an index was constructed from the January 1 and July 1 estimates of population as published by the United States Bureau of Census. Monthly population figures were calculated from these bi-yearly estimates and the index then calculated with 1923-1925 as 100. The population index indicates that although there has been a steady increase in our population, the rate of increase has not been as great since 1930 as in the twenties. This is partly the result of a well-established tendency for the rate of population growth to slow down, but also a reflection of the depression period, since with decreased business activity the birth rate tends to decrease.

The Federal Reserve Board industrial production index, adjusted for seasonal variation, reached a peak of 121 in December 1936. By May 1938 it had fallen to 76, which is a decline of 45 in 17 months. The new index of industrial production per capita rose to only 106 in December 1936 (Figure 1). By May 1938 it had fallen to 66 which is a decline of only 40 points.

Since May there has been a marked improvement in business activity and the index of industrial production index per capita (adjusted for seasonal variation) for October 1938 is 83, and incomplete data suggest a figure of about 88 for November.

F. G. WARREN and E. J. WORKING

¹⁻¹²For data on sources, see page 211, November issue.

TABLE A.--INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural income ⁸	Factory payrolls ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S.		Illinois			
	All commodities ¹	Farm products ²			In money ⁵	In money ⁶					In purchasing power^{7}
Base period	1926	1926	1924-29	1924-29	1924-29	1924-29	1924-29	1924-29	1923-25	1923-25
1929	95	105	104	99	103	103	104	107	110	119
1930	86	88	89	94	83	87	93	100	89	96
1931	73	65	62	80	58	58	72	86	68	81
1932	65	48	41	69	43	43	62	68	47	64
1933	66	51	45	71	49	51	72	63	50	76
1934	75	65	61	80	57	55	69	72	64	79
1935	80	79	82	81	64	65	80	77	74	90
1936	81	81	86	80	75	82	102	87	86	105
1937	86	86	96	84	81	86	102	96	102	110
1938 Jan.	81	72	74	82	70	85	104	90	75	80
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Mar.	80	70	72	81	67	80	99	88	77	79
Apr.	79	68	70	81	70	85	105	87	75	77
May	78	68	69	81	68	88	109	86	73	76
June	78	69	70	80	72	84	105	85	71	77
July	79	69	74	80	83	80	101	86	71	83
Aug.	78	67	66	79	72	77	97	87	77	88
Sept.	78	68	69	78	73	73	94	90	81	90
Oct.	78	67	64	78	68	73	94	...	84	96 ¹¹
Nov.	77 ¹¹	68 ¹¹	66 ¹¹	78	...	...	...	...	...	100 ¹¹

TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS^{1,2}

Product	Yearly average			Current months			
	1924-29	1936	1937	Aug.	Sept.	Oct.	Nov.
Corn, bu.	\$.79	\$.75	\$.94	\$.44	\$.44	\$.36	\$.37
Oats, bu.	.41	.31	.39	.18	.20	.20	.21
Wheat, bu.	1.27	1.00	1.10	.54	.55	.56	.56
Barley, bu.	.65	.74	.84	.40	.44	.43	.41
Soybeans, bu.	1.77	.94	1.20	.70	.65	.60	.60
Hogs, cwt.	9.80	9.70	10.11	8.00	8.60	7.40	7.40
Beef cattle, cwt.	8.52	7.51	8.93	8.10	8.20	7.80	7.80
Lambs, cwt.	12.00	8.74	9.58	7.50	7.60	7.30	7.80
Milk cows, head.	78.61	55.00	61.00	60.00	58.00	60.00	62.00
Veal calves, cwt.	11.25	8.49	9.43	8.70	9.40	9.20	9.10
Sheep, cwt.	6.35	3.66	4.09	3.10	3.20	3.30	3.20
Butterfat, lb.	.42	.31	.32	.23	.24	.23	.24
Milk, cwt.	2.31	1.80	1.92	1.55	1.60	1.65	1.65
Eggs, doz.	.27	.21	.20	.17	.22	.24	.27
Chickens, lb.	.21	.16	.16	.14	.14	.13	.13
Wool, lb.	.35	.29	.32	.20	.20	.20	.22
Apples, bu.	1.36	1.15	1.18	.90	.95	1.05	1.15
Hay, ton.	1.27	13.33	12.41	5.90	6.40	6.30	6.60
Potatoes, bu.	1.44	1.22	1.12	.55	.60	.60	.60

¹⁻¹²For sources of data in tables see previous page.

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 Director, Extension Service in Agriculture and Home Economics, University of Illinois

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ILLINOIS FARM ECONOMICS

Department of Agricultural Economics, College of Agriculture and Agricultural Experiment Station, in cooperation with the Extension Service in Agriculture and Home Economics, University of Illinois

R. C. Ross, Editor

January, 1939

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CATTLE AND SHEEP ON FEED

Slaughter supplies of grain fed cattle may be expected to increase more than seasonally during the next 4 to 5 months, according to a recent report of the Bureau of Agricultural Economics. On January 1, 1939, there were about seven percent more cattle on feed in the eleven Corn-Belt states than on January 1, 1938. The increase in Illinois was eight percent over the same period. The increase in supplies in the Corn Belt is partly offset by decreases in the Western States and in the Lancaster (Pennsylvania) feeding areas.

Slaughter supplies of the lower grades of cattle will probably decrease more than seasonally during the next few months because of the withholding of cows from market for herd-building purposes. The reduction in marketings of the lower grades will more than offset the increase in number and weight of grain fed cattle. As compared with a year earlier this will result in a decrease in total beef supplies, which together with a stronger consumer demand than last year is expected to make for continued firmness in cattle prices.

Estimates as of January 1, 1939 place the number of sheep and lambs on feed at 5,700,000 or five percent smaller than the 5,997,000 on feed January 1, 1938. The average number on feed during the five-year period (1933-38) was 5,558,000. In Illinois there was estimated to be 295,000 sheep and lambs on feed January 1, 1939 as compared to 290,000 on January 1, 1938. The increase in the Corn-Belt states was more than offset by decreases in the Western States, particularly Colorado and Utah.

CASH FARM INCOME, 1938

Cash farm income in 1938 including Government payments was \$7,632,000,000, according to estimates of the Bureau of Agricultural Economics. For 1937 income was \$8,574,000,000, and for 1936 it was \$7,944,000,000. For the United States livestock and livestock products accounted for 52 percent of the total, crops for 42 percent, and Government payments for 6 percent. For Illinois the corresponding percentages were 58, 39 and 3 percent respectively. The figures on cash farm income for Illinois and the United States follow (Table 1).

TABLE 1.—CASH FARM INCOME FOR ILLINOIS AND THE UNITED STATES BY MAJOR GROUPS

	Illinois		United States	
	1937 (1,000 dollars)	1938 (1,000 dollars)	1937 (1,000 dollars)	1938 (1,000 dollars)
Grains	140,184	128,988	1,008,232	842,873
Fruits and nuts	9,100	5,518	547,074	403,577
All vegetables	10,504	7,520	616,423	501,991
Other crops	34,794	36,445	1,673,885	1,411,584
Total crops	194,582	178,471	3,845,614	3,160,025
Meat animals			2,039,211	1,892,843
Poultry and eggs			637,312	569,438
Dairy products			1,530,227	1,430,244
Other			155,172	97,038
Total livestock	292,131	267,128	4,361,922	3,989,563
Total crops and livestock	486,713	445,599	8,207,536	7,149,588
Government payments	15,393	11,549	366,909	482,221
Total farm cash income	502,106	457,148	8,574,445	7,631,809

GRAIN STOCKS ON FARMS

Farm stocks of corn, wheat and oats on January 1, 1939 were well above average both for the United States and for Illinois (Table 2). As compared with a year earlier, stocks of corn and oats are larger this year in the entire country, but in Illinois stocks of all three grains are below the January 1, 1938 figures.

TABLE 2.—GRAIN STOCKS ON FARMS JANUARY 1, ILLINOIS AND UNITED STATES¹

	Illinois			United States		
	Av. 1928-37 1000 bu.	1938 1000 bu.	1939 1000 bu.	Av. 1928-37 1000 bu.	1938 1000 bu.	1939 1000 bu.
Corn.....	200,096	336,009	319,453	1,331,334	1,673,221	1,797,281
Wheat.....	7,454	9,590	8,510	215,599	208,510	281,190
Oats.....	69,456	103,107	72,952	625,672	698,431	685,583

¹Data from January Crop Report, U. S. D. A.

These figures for Illinois for January 1, 1939 represent 88 percent of the 1938 crop of corn, 66 percent of the oat crop, and 20 percent of the wheat crop. This represents more than the ten year average proportion of corn and oats but slightly less than the average proportion of wheat.

“CROOKED FARMING” LEADS STRAIGHT TO PROFITS

“Crooked farming,” which paradoxically involves nothing beyond the law, is leading straight to profits on many American farms today. Farm owners, tenants, business men, extension leaders, and laymen interested in farming continue, however, to exhibit varied reactions to terracing, strip cropping, contouring and other practices being effected on farms in project demonstration areas of the United States Soil Conservation Service.

The program has been criticized at various times as foolish and unwarranted, but as many farmers fight against soil losses, decline in crop yields, deterioration of buildings and equipment, and seemingly ever-increasing mortgages, results from the beginning years of the Soil Conservation Service program now show that “crooked farming” can do much to straighten out the economic status of farmers, whether owners or tenants.

That the economics of soil conservation is a question of paramount importance is evidenced by results of a cooperative effort of the Department of Agricultural Economics, College of Agriculture, University of Illinois, and the Soil Conservation Service of the United States Department of Agriculture in conducting a farm record study in Illinois to ascertain and to analyze factors of good farming and to examine the economic effects of a soil conservation program. Detailed farm records are being kept on farms cooperating with the Soil Conservation Service in its demonstration program and also on neighboring farms which are following the usual systems of farming.

In a comparative study designed to measure the effect of conservation practices in the LeRoy, Illinois Soil Conservation Project Area, where farm records have been kept for the past three years, thirty farms cooperating with the Conservation program were matched with an equal number of non-cooperating farms on bases of number of acres, soil ratings, proportions of land tillable, and land valuations.

While normally three to five years are required to effect a program of conservation, records for 1937 (in all cases one to three years after the program was initiated) show striking results in an economic comparison of cooperators and non-cooperators. By 1937 cooperating farms in this grain-producing area had improved materially over those which employed the usual system of cultivation (Table 3).

Reduction of acreage of soil building crops on non-cooperating farms was due to various causes, most important being an increasing inability to grow legumes because of soil deterioration. Although the cooperating farms are in the transitory stage, their improved rotations, applications of limestone and fertilizer, and soil conserving practices such as contour farming, strip cropping, and terracing are reflected in higher crop yields (Table 4).

By 1937 livestock was playing an important part in the higher earnings secured on the cooperating farms. As compared with the non-cooperators, these farms had larger investments in livestock, fed more feed and were more efficient in their feeding operations. They turned naturally to livestock to utilize roughages produced under the soil conserving system of farming. Good soil-building legumes

TABLE 3.—TRENDS IN LAND USE, COOPERATING AND NON-COOPERATING FARMS

Year	Proportion of tillable land in grain crops		Proportion of tillable land in soil building and soil conserving crops	
	30 Cooperators	30 Non-Cooperators	30 Cooperators	30 Non-Cooperators
	percent	percent	percent	percent
1935	77.8	86.5	22.2	13.5
1936	73.6	88.2	26.4	11.8
1937	71.7	91.4	28.3	8.6

TABLE 4.—TREND IN CROP YIELDS ON COOPERATING AND NON-COOPERATING FARMS

	1935		1937	
	30 Cooperating Farms	30 Non-Cooperating Farms	30 Cooperating Farms	30 Non-Cooperating Farms
Corn, bu. per acre	49.8	47.2	55.6	48.8
Oats, bu. per acre	32.5	29.8	51.5	48.3
Soybeans, bu. per acre	16.8	19.4	22.2	19.6

TABLE 5.—GROSS INCOME, EXPENSES AND NET INCOME ON COOPERATING AND NON-COOPERATING FARMS, 1935-1937

Items	1935		1937	
	30 Cooperating Farms	30 Non-Cooperating Farms	30 Cooperating Farms	30 Non-Cooperating Farms
Gross receipts per acre	\$14.86	\$13.91	\$20.44	\$16.81
Total expenses per acre	8.57	9.11	10.54	10.27
Net income per acre	\$ 6.29	\$ 4.80	\$ 9.90	\$ 6.54
Net income per farm	\$1254.00	\$882.00	\$1931.00	\$1250.00

used in hay and pasture mixtures on cooperating farms resulted in higher quality roughages and hence in more efficient livestock gains.

The "acid test" of the feasibility of conservation is the return in dollars and cents and here again the cooperating farms were superior.

Cooperating farms in 1935, the first year the program was underway, had an advantage in net income of \$372 a farm and this advantage increased to \$681 a farm for the year 1937 (Table 5).

To date the farm record study shows clearly that a planned program of soil conservation and erosion control not only makes possible higher farm income but also provides for maintenance and improvement of soil resources and farm improvements, hence adds to the capital assets of the farm. Naturally, any such program is one of long-term planning and full benefits may not be realized for a number of years, but records indicate that on "conservation" farms these benefits will increase as surely as productivity will decrease on "non-conservation" farms.

¹⁻¹²For data on sources, see page 211, November issue.

ELMER L. SAUER

TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural income ⁸	Factory payrolls ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S.		Illinois			
	All commodities ¹	Farm products ²			In money ⁵	In money ⁶					In purchasing power^{7}
Base period	1926	1926	1924-29	1924-29	1924-29	1924-29	1924-29	1924-29	1923-25	1923-25
1929	95	105	104	99	103	103	104	107	110	119
1930	86	88	89	94	83	87	93	100	89	96
1931	73	65	62	80	58	58	72	86	68	81
1932	65	48	41	69	43	43	62	68	47	64
1933	66	51	45	71	49	51	72	63	50	76
1934	75	65	61	80	57	55	69	72	64	79
1935	80	79	82	81	64	65	80	77	74	90
1936	81	81	86	80	75	82	102	87	86	105
1937	86	86	96	84	81	86	102	96	102	110
1938 Jan.	81	72	74	82	70	85	104	90	75	80
Feb.	80	70	71	82	62	79	96	88	77	79
Mar.	80	70	72	81	67	80	99	88	77	79
Apr.	79	68	70	81	70	85	105	87	75	77
May	78	68	69	81	68	88	109	86	73	76
June	78	69	70	80	72	84	105	85	71	77
July	79	69	74	80	83	80	101	86	71	83
Aug.	78	67	66	79	72	77	97	87	77	88
Sept.	78	68	69	78	73	73	94	90	81	90
Oct.	78	67	64	78	68	73	94	90	84	96
Nov.	78	68	66	78	67	...	...	...	84	103
Dec.	77 ¹¹	68 ¹¹	67 ¹¹	78 ¹¹	...	...	...	...	...	104 ¹²

TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS¹²

Product	Yearly average			Current months			
	1924-29	1936	1937	Sept.	Oct.	Nov.	Dec.
Corn, bu.	\$.79	\$.75	\$.94	\$.44	\$.36	\$.37	\$.42
Oats, bu. ....	.41	.31	.39	.20	.20	.21	.24
Wheat, bu.	1.27	1.00	1.10	.55	.56	.56	.57
Barley, bu. ....	.65	.74	.84	.44	.43	.41	.39
Soybeans, bu.	1.77	.94	1.20	.65	.60	.60	.65
Hogs, cwt.	9.80	9.70	10.11	8.60	7.40	7.40	7.00
Beef cattle, cwt.	8.52	7.51	8.93	8.20	7.80	7.80	7.70
Lambs, cwt.	12.00	8.74	9.58	7.60	7.30	7.80	8.10
Milk cows, head.	78.61	55.00	61.00	58.00	60.00	62.00	61.00
Veal calves, cwt.	11.25	8.49	9.43	9.40	9.20	9.10	8.60
Sheep, cwt.	6.35	3.66	4.09	3.20	3.30	3.20	3.45
Butterfat, lb. ....	.42	.31	.32	.23	.23	.24	.26
Milk, cwt.	2.31	1.80	1.92	1.55	1.60	1.65	1.70
Eggs, doz. ....	.27	.21	.20	.22	.24	.27	.26
Chickens, lb. ....	.21	.16	.16	.14	.13	.13	.13
Wool, lb. ....	.35	.29	.32	.20	.20	.22	.23
Apples, bu.	1.36	1.15	1.18	.95	1.05	1.15	1.30
Hay, ton.	1.27	13.33	12.41	6.40	6.30	6.60	6.20
Potatoes, bu.	1.44	1.22	1.12	.60	.60	.60	.70

¹⁻¹²For sources of data in tables see previous page.

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Director, Extension Service in Agriculture and Home Economics, University of Illinois

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ILLINOIS FARM ECONOMICS

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R. C. Ross, Editor

February, 1939

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LIVESTOCK ON FARMS

Numbers of cattle, hogs, sheep and poultry on farms have increased during the past year, while those of horses and mules have declined, according to the annual livestock report recently released by the Bureau of Agricultural Economics (Fig. 1 and Table 1).

Numbers of horses and mules continued the steady decline which has been in evidence for the past twenty years. The cattle population has again turned upward after four years' decline which started with the drastic liquidation because of feed shortage in the drouth year 1934, and which continued at a reduced rate into 1938. With sheep and lambs, liquidation was moderate in 1934 and numbers have been increasing since 1936. Reduction in numbers of hogs was drastic in 1934 when, as a result of drouth and the production control program,

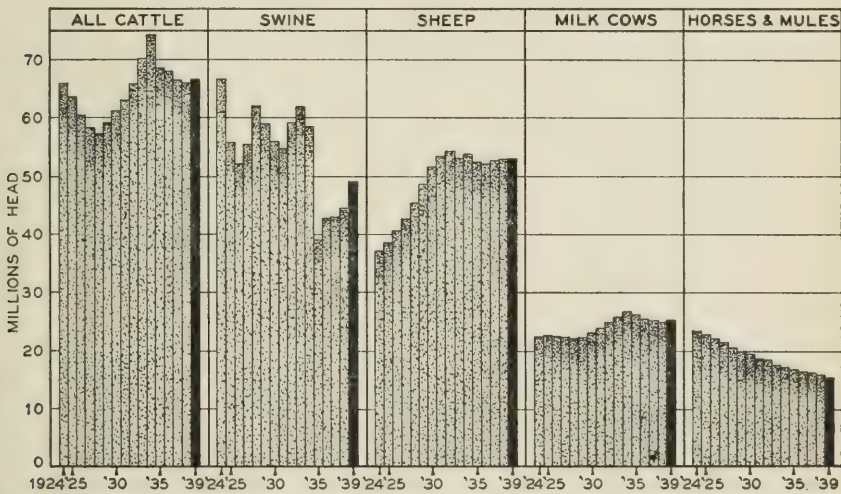


FIG. 1.—LIVESTOCK ON FARMS IN THE UNITED STATES ON JANUARY 1, 1924-39

TABLE 1.—LIVESTOCK ON FARMS, JANUARY 1, UNITED STATES
(thousands)

	Horses and mules	Cattle and calves	Cows and heifers	Sheep and lambs	All hogs	Chickens
Av. 1927-36	18,412	64,511	24,304	50,588	54,884	440,971
1935	16,683	68,529	26,069	52,245	39,004	389,958
1936	16,319	67,929	25,439	52,022	42,837	401,238
1937	16,013	66,803	24,993	52,489	42,770	420,257
1938	15,556	66,083	24,834	52,682	44,218	386,573
1939	15,182	66,821	25,093	53,762	49,011	412,647

ILLINOIS						
1937	837	2,620	1,146	922	4,053	23,527
1938	801	2,646	1,123	965	4,134	21,645
1939	759	2,699	1,134	990	4,423	22,439

numbers fell from 59 millions to 39 millions. While each succeeding year has shown an increase, the greatest gain in numbers has been in 1938, and the aggregate gain in the four years is equal to half the loss in 1934. Numbers of chickens are about 3 percent greater than the average of the last five years, but 9 percent below the average for the ten-year period, 1925-34.

THE HOG SITUATION

The rapid increase in hog numbers in 1938 and the prospect that the number of sows to farrow in the spring of 1939 will be 21 percent greater than in the spring of 1938 reflects the ample feed supplies and a hog-corn ratio which has continued favorable for 16 months. While these conditions usually lead to the marketing of hogs at relatively heavy weights, until recent weeks this tendency has been largely offset by earlier marketing to avoid the seasonal price decline.

Marketing of hogs October 1 to January 1 was 16 percent above that of the same period a year earlier, reflecting the larger spring pig crop in 1938. January marketings were less than a year earlier, but an increased movement is expected as the fall pig crop movement gets under way. Total marketings for the year ending with September are expected to be about 15 percent greater than in the preceding year. The anticipated increase in spring pigs will not materially affect market receipts until after the beginning of the next marketing year on October 1 unless farmers market large numbers of spring pigs at light weights in August and September, as they did in 1938.

During 1938 imports of pork amounted to 52 million pounds or about two-thirds as much as in 1937, and 54 percent as much as our pork exports. With larger domestic supplies, imports are declining while exports are expanding.

Exports of pork during the calendar year amounted to 96 million pounds, or the pork production of about 620,000 hogs. Lard exports totaled 205 million pounds, or the lard output of about 6,900,000 hogs. The heaviest purchaser both of pork and lard was the United Kingdom, and exports to that country may be expected to increase in 1939 under the recently enacted trade agreement.

Domestic demand, which improved markedly during the latter half of 1938, appears likely to maintain a position of little change for some months with further improvement by summer.

Hog prices followed the usual seasonal decline during the latter half of 1938, and have advanced somewhat in recent weeks, reflecting the seasonal reduction in market supplies. Heavier marketings are in prospect after March, with a consequent decline in prices probable.

The picture farther in the future is uncertain. A large spring pig crop is in prospect, with another increase in the fall crop likely if feed production is average. The total pig crop for 1939 may amount to as much as 80 million, or 13 percent greater than the total crop of 1938 and about equal to the 1929-33 average. If this situation materializes lower prices must be expected unless business conditions greatly strengthen consumer demand.

CONSIDERATIONS IN GOVERNMENTAL PRICE CONTROL OF DAIRY PRODUCTS

Minimum milk prices in many parts of the United States are being set by action of states or the federal government. Adjacent to Illinois wholesale and retail prices are being set by milk control boards in Indiana and Wisconsin. Sixteen other states are also engaged in price fixing. During recent years the Dairy Section of the Agricultural Adjustment Administration has been setting minimum prices in several cities, including St. Louis and the quad cities (Rock Island, Moline, and East Moline, Illinois, and Davenport, Iowa). More recently the federal government, through the Federal Surplus Commodities Corporation

and the Dairy Products Marketing Association, has been establishing a minimum level of butter prices.

Looking ahead some states are considering whether they should adopt some form of price control while others are considering the abolition of this type of price fixing. A farmer, looking at the problem of price-fixing, may well ask the question: "What factors should be considered in governmental price control?"

From the viewpoint of farmers the underlying purpose of milk price control is to help them obtain the highest possible income from their dairy enterprises year after year. In order to evaluate whether this objective is being realized, careful consideration should be given to the effect of price-fixing upon: (1) consumption of market milk, (2) milk production, and (3) the use of substitute products.

Effect of Price-Fixing Upon Market Milk Consumption. Previous studies have indicated that the decline in consumers' incomes, combined with relatively high prices for market milk, have been the principal causes of losses in consumption.¹ More recent studies of consumption in specific cities tend to verify these conclusions.

Changes in the estimated per-capita consumption of milk in New York and Boston from 1930 to 1938 are shown in Fig. 2. The facts disclosed are:

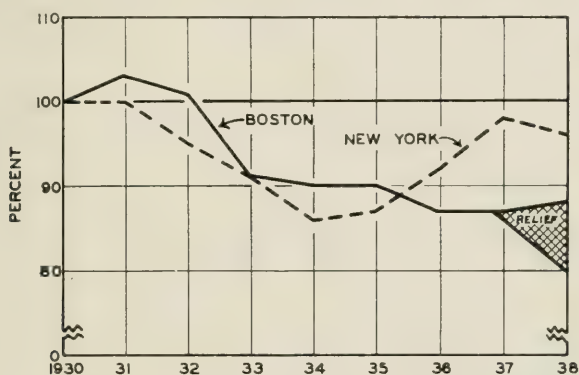


FIG. 2.—CHANGES IN ESTIMATED PER CAPITA CONSUMPTION OF MARKET MILK IN NEW YORK AND BOSTON, 1930-1938

(Based upon milk receipts as reported by the B.A.E., and relief purchases as reported by the Federal Surplus Commodities Corporation)

1. From 1930 or 1931 to 1934 the per-capita consumption of milk in both Boston and New York declined.

2. From 1934 to 1937 the per-capita milk consumption in New York increased 12 percent, while that in Boston declined 3 percent.

3. The 1938 per-capita consumption in New York was slightly less than in 1937, but averaged 96 percent of that in 1930. In contrast, the 1938 consumption in Boston, excluding milk for relief purposes, averaged 80 percent of that for 1930, or 88 percent when relief milk was included.

What caused these changes in milk consumption? The major reason for the decline in milk consumption in these cities during the early thirties can be attributed to the decline in consumer incomes.² Since 1934, the increase in milk consumption in New York City can be attributed to an increase in consumer incomes, combined with low retail prices at which milk could be purchased thru stores. In February, 1927, wagon sales of milk in New York City averaged 54.4

¹Illinois Farm Economics, Nos. 34 and 35, March and April, 1938, pp. 161 and 162.

²University of Ill. Dept. of Agr. Ec. mimeographed report AE-986, Nov. 1938, *Increasing the Consumption of Milk*, pp. 148-152.

percent¹ of total milk sales, as compared with 41.2 percent² in June, 1938. During this period store sales increased from 27.8 percent to 46.2 percent of total sales, while store prices ranged from 2 to 5.1 cents per quart less than doorstep-delivered prices.

The major cause why milk consumption in Boston failed to increase since 1934 can be attributed to losses in store sales resulting from artificially high resale prices, particularly for store milk. These prices are fixed and enforced by the Massachusetts Milk Control Board.

From 1922 to 1925, Boston housewives could buy bottled milk from stores for nearly 3 cents per quart less than retail delivered prices. From 1926 to 1933, the usual price spread was 2½ cents per quart. The importance of store sales is indicated by the following statement.³ "In 1921 store sales of milk in the Boston metropolitan area were negligible. By the early part of 1932, according to Bronson, they had increased to 38 percent of the total sales in this market. By 1933, they constituted nearly half of the total sales of milk in this market."

During the latter part of 1934, the Massachusetts Milk Control Board reduced the differential between prices of store and delivered milk from 2½ cents to 1 cent per quart. The continued decrease in estimated per-capita consumption since 1934 can be attributed primarily to the marked reduction in store sales which resulted from this increase in the store price.

In Wisconsin, which also has fixed and enforced resale and wholesale prices, the 1938 consumption of market milk has been estimated as 10 percent less than in 1930.⁴

The Effect of Price-Fixing Upon Milk Production. In 1938, total milk production in the United States was four percent higher than in 1937 (Fig. 3).

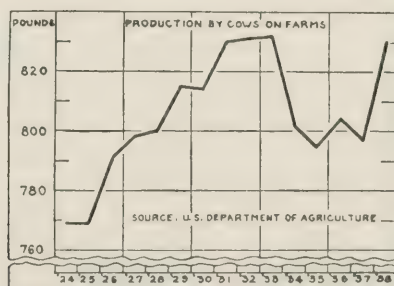


FIG. 3.—CHANGES IN THE PER CAPITA PRODUCTION OF MILK IN THE UNITED STATES, 1924 to 1938

This increase can be attributed to (1) an unusually favorable season; (2) much lower feed prices; (3) the fixing of butter prices at a level higher than would have prevailed under competitive conditions; and (4) a small increase in the number of dairy cattle.

Farmers feed more heavily when milk or butter prices are high compared with feed prices. Moreover, during a longer period, some farmers engaged in other enterprises such as the production of beef cattle or grain shift to milk production if they believe this to be more profitable. Because of such actual or possible shifts in production, the fixing of milk or butter prices at levels which

¹Cornell Univ. Agr. Exp. Sta. Bul. 459, July, 1927, p. 7.

²N. Y. State Coll. of Agr. and U.S.D.A. A.E.237. *Sales of Milk by Retail Stores in the New York Market*, June 1938, pp. 1 and 2.

³Ill. Exp. Sta. Bul. 397, Jan. 1934, p. 445.

⁴Based upon information obtained from an official of a milk producers' association operating in that area.

are to any considerable degree out of line with prices of other farm products, is likely over a period of years to prove unprofitable to dairy farmers.

Effect of Price-Fixing Upon Consumption of Substitute Products. That there are definite limitations upon price-fixing is indicated by the fact that when the spread between retail prices of market and evaporated milk is wide, some consumers substitute evaporated milk for market milk. Likewise when the price of butter is high compared with that of oleo, consumers use more of this vegetable substitute.

Since 1933, the annual per capita consumption of evaporated and condensed milk in the United States has increased from 13.2 to 16.2 pounds (Fig. 4).

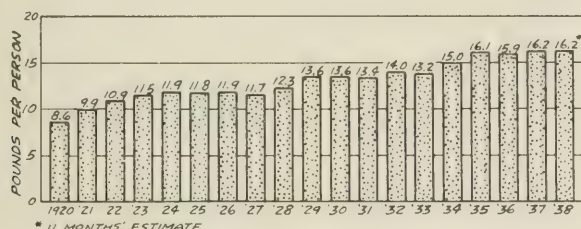


FIG. 4.—CHANGES IN THE PER CAPITA CONSUMPTION OF EVAPORATED AND CONDENSED MILK (CASE GOODS), 1920 TO 1938. DATA FROM B.A.E.

During this period the spread between the average retail price per quart of market milk and per 14½-ounce can of evaporated milk has increased from 4 to 5.3 cents per unit (Fig. 5).¹ In fact, by December, 1938, this spread had increased to 5.7 cents per unit, the widest spread recorded for any month since the Bureau of Labor Statistics began tabulation of these data in 1919. While increased use of concentrated milk as a baby food, and an aggressive merchandis-

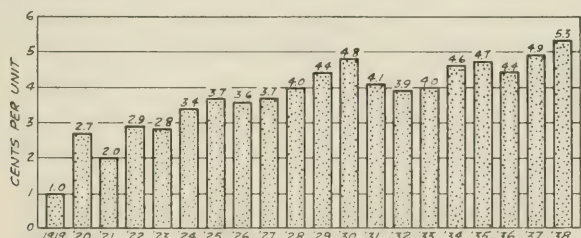


FIG. 5.—AVERAGE DIFFERENCE BETWEEN RETAIL PRICES OF A QUART OF MARKET MILK AND A 14½-OUNCE CAN OF EVAPORATED MILK, BY MAJOR CITIES, 1925-1929, AND 1938

ng program may have been factors in the increase in consumption of canned milk in recent years, the major cause can be attributed to the increased price spread between canned and market milk.

Increases in market milk prices have varied widely in different cities. Among 4 major cities (over 500,000 population) in the United States, the greatest increase between the retail price per quart of market milk and per 14½-ounce can of evaporated milk has been in Milwaukee, where the increase was from .8 cent for 1925-29 to 4.4 cents in 1938 (Fig. 6). This relative increase in the retail price of

¹These prices represent *doorstep delivered* prices for market milk and *store* prices for evaporated milk.

market milk accounts, at least in part, for the decrease in consumption of market milk since 1930.

In St. Louis the spread between prices of fluid and evaporated milk has increased from 3.6 cents per unit in the period, 1925-29 to 6 cents per unit in 1938. Data on milk consumption which are available only since 1934, show a 10 percent decrease in 1938 as compared with 1934. This decrease can be attributed both to unfavorable publicity in 1934 regarding quality of milk and to relatively high retail prices for market milk from 1934 to 1938. While minimum prices to producers in this district have been fixed by the federal government since 1934, no attempt has been made in this period to fix resale prices.

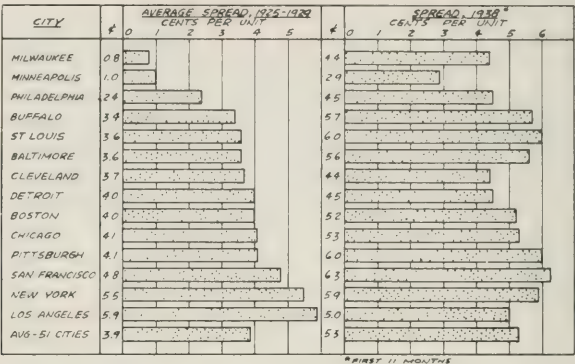


FIG. 6.—Average Difference in Cents Between Retail Prices of a Quart of Market Milk and a 14½-Ounce Can of Evaporated Milk, 51 Cities, 1919 to 1938
(Computed from reports of the U. S. Bureau of Labor Statistics.)

That governmental price-fixing does not necessarily mean an increase in prices is indicated by the situation in Los Angeles, where market milk prices have been established under state control. In 1938 the spread between prices of market and evaporated milk, averaged nearly a cent less than for 1925-29.

Likewise, changes in prices of market and evaporated milk in Chicago show that relative price increases are not limited to cities subject to governmental price-fixing; here in 1938, the spread averaged 5.3 cents per unit compared with 4.1 cents in the years 1925-29.

Oleomargarine as a Butter Substitute. A marked improvement in quality of oleomargarine combined with its relative cheapness, and an aggressive mer-

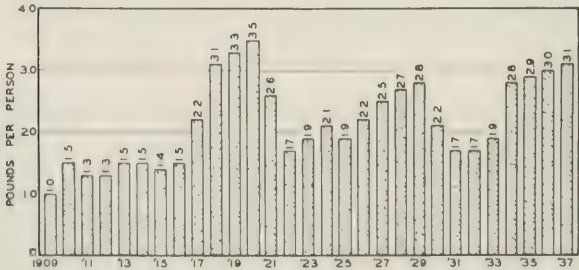


FIG. 7.—Changes in Annual Per Capita Consumption of Oleomargarine, United States, 1909 to 1937
(Data from U.S.D.A.)

chandising program, has resulted in an increased use during the past few years. This should be considered carefully in any program for fixing minimum prices of butter.

In 1937 consumption of oleomargarine averaged 3.1 pounds per person, or not quite double that of 1932 (Fig. 7). With the exception of the three war- and post-war years of 1918-20, this is the highest consumption in the past twenty-nine years.

Prior to the World War consumption of oleo averaged less than 1.5 pounds annually per person. High butter prices during and immediately following the World War resulted in an increase in oleo consumption to 3.5 pounds per person in 1920, or more than double that of the pre-war period. During the early twenties oleo consumption declined to about 2 pounds annually per person. Later, as butter prices advanced, oleo consumption again increased, averaging 2.8 pounds per person in 1929. Following the depression, 1929-32, butter prices declined to a new low, and oleo consumption fell to 1.7 pounds per person. This forced oleo manufacturers to look for new ways to meet competition, and resulted in bringing about a substantial improvement in the quality of oleo, and the initiation of an aggressive merchandising program.

The retail price for oleo is usually around half that for butter; for 51 cities in December, 1938, it averaged 16.8 cents per pound, compared with 35.6 cents for butter.

R. W. BARTLETT

¹⁻¹²The first source is for annual data; the second is for current data from which tables may be brought to date.

¹Survey of Current Business, 1936 supplement, U.S. Dept. of Commerce; subsequent monthly issues. ²Same as footnote 1. ³Illinois Crop and Livestock Statistics, Circular 438 (1937); monthly mimeographs of Statistical Tables for Illinois Crop Report, converted from 1910-14 = 100 to 1924-29 = 100 by multiplying by .7151. ⁴Agricultural Situation, Bureau of Agricultural Economics, U.S.D.A.; Agricultural Situation, converted from 1910-14 = 100 to 1924-29 = 100 by multiplying by .6486. ⁵Calculated from data furnished by Bureau of Agricultural Economics; Survey of Current Business, seasonally adjusted. ⁶Calculated by Department of Agricultural Economics, University of Illinois, seasonally adjusted. Data from Farm Income, Bureau of Agricultural Economics; B.A.E. monthly mimeograph. Receipts from Sale of Principal Farm Products (government payments not included). ⁷Obtained by dividing Index of Illinois Farm Income (column 6) by Index of Prices Paid by Farmers (column 4). ⁸Monthly Indexes of Non-Agricultural and National Income, Supplement, August, 1937, B.A.E.; Price and Demand Situation, or Agricultural Situation. ⁹Survey of Current Business, 1938 Revision; subsequent monthly issues, unadjusted for seasonal variation. ¹⁰Federal Reserve Bulletin of Federal Reserve Board, September, 1933 and subsequent issues; Survey of Current Business, seasonally adjusted. ¹¹Preliminary estimate. ¹²Illinois Crop and Livestock Statistics, Cir. 438; Monthly price releases, State Agricultural Statistician.

TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural income ⁸	Factory payrolls ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. In money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period	1926	1926	1924-29	1924-29	1924-29	1924-29	1924-29	1924-29	1923-25	1923-25
1929	95	105	104	99	103	103	104	107	110	119
1930	86	88	89	94	83	87	93	100	89	96
1931	73	65	62	80	58	58	72	86	68	81
1932	65	48	41	69	43	43	62	68	47	64
1933	66	51	45	71	49	51	72	63	50	76
1934	75	65	61	80	57	55	69	72	64	79
1935	80	79	82	81	64	65	80	77	74	90
1936	81	81	86	80	75	82	102	87	86	105
1937	86	86	96	84	81	86	102	96	102	110
1938	79 ¹¹	69 ¹¹	69 ¹¹	80 ¹¹	70 ¹¹	81	101	89	78 ¹¹	86
Feb.	80	70	71	82	62	79	96	88	77	79
Mar.	80	70	72	81	67	80	98	88	77	79
Apr.	79	68	70	81	70	85	105	87	75	77
May	78	68	69	81	68	88	109	86	73	76
June	78	69	70	80	72	84	105	85	71	77
July	79	69	74	80	83	80	101	86	71	83
Aug.	78	67	66	79	72	77	97	87	77	88
Sept.	78	68	69	78	73	73	94	90	81	90
Oct.	78	67	64	78	68	73	94	90	84	96
Nov.	78	68	66	78	70	90	116	92	84	103
Dec.	77	68	66	78	68	80	103	94	87	104
1939 Jan.	77 ¹¹	67 ¹¹	66	78	...	...	...	...	83 ¹¹	101 ¹¹

TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS¹²

Product	Yearly average			Current months			
	1924-29	1936	1937	Oct.	Nov.	Dec.	Jan.
Corn, bu.....	\$.79	\$.75	\$.94	\$.36	\$.37	\$.42	\$.44
Oats, bu.....	.41	.31	.39	.20	.21	.24	.26
Wheat, bu.....	1.27	1.00	1.10	.56	.56	.57	.60
Barley, bu.....	.65	.74	.84	.43	.41	.39	.40
Soybeans, bu.....	1.77	.94	1.20	.60	.60	.65	.70
Hogs, cwt.....	9.80	9.70	10.11	7.40	7.40	7.00	7.10
Beef cattle, cwt.....	8.52	7.51	8.93	7.80	7.80	7.70	7.70
Lambs, cwt.....	12.00	8.74	9.58	7.30	7.80	8.10	8.10
Milk cows, head.....	78.61	55.00	61.00	60.00	62.00	61.00	64.00
Veal calves, cwt.....	11.25	8.49	9.43	9.20	9.10	8.60	8.90
Sheep, cwt.....	6.35	3.66	4.09	3.30	3.20	3.45	3.30
Butterfat, lb.....	.42	.31	.32	.23	.24	.26	.24
Milk, cwt.....	2.31	1.80	1.92	1.60	1.65	1.70	1.65
Eggs, doz.....	.27	.21	.20	.24	.27	.26	.16
Chickens, lb.....	.21	.16	.16	.13	.13	.13	.14
Wool, lb.....	.35	.29	.32	.20	.22	.23	.22
Apples, bu.....	1.36	1.15	1.18	1.05	1.15	1.30	1.40
Hay, ton.....	12.72	13.33	12.41	6.30	6.60	6.20	6.10
Potatoes, bu.....	1.44	1.22	1.12	.60	.60	.70	.75

¹⁻¹²For sources of data in tables see previous page.

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Director, Extension Service in Agriculture and Home Economics, University of Illinois

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ILLINOIS FARM ECONOMICS

Department of Agricultural Economics, College of Agriculture and Agricultural Experiment Station, in cooperation with the Extension Service in Agriculture and Home Economics, University of Illinois

R. C. Ross, Editor

March, 1939

Number 46

FARM ACCOUNTS INDICATE INCREASING LIVESTOCK PRODUCTION

Livestock production on Illinois accounting farms is increasing as the result of more abundant feed supplies available since the harvest of 1937. In the United States as well as for Illinois feed supplies per animal have been at record levels during 1938 and 1939. Livestock numbers were drastically reduced following the drouth years of 1934 and 1936 and since then have been gradually increasing.

Changes in livestock production in Illinois are clearly indicated by a comparison of inventories from farm account records now in process of analysis by the Department of Agricultural Economics. A comparison of inventories for January 1, 1938, and January 1, 1939, from more than 1,900 farm records in the state-wide extension project indicates the following changes:

1. A three percent increase in number of beef cows.
2. No change in number of dairy cows.
3. An increase of seven percent in number of cattle on feed.
4. An increase of 21 percent in number of brood sows.
5. A decrease of 14 percent in number of spring pigs on farms.
6. A decrease of 10 percent in number of summer pigs on farms.
7. An increase of 23 percent in number of fall pigs on farms.
8. Practically no change in number of lambs on feed.

On accounting farms in Illinois there was little increase in total cow numbers during 1938:—no change in the number of dairy cows and a small increase in the number of beef cows. The records indicated no increase in number of farms having beef cows, altho there were three percent more cows on these farms at the end of the year than at the beginning. Altho conservation programs may be increasing the number of beef and dairy herds on Illinois farms generally, these data indicate no increase as yet on accounting farms. The indicated increase in the number of feeder cattle is in line with the eight percent increase reported for Illinois by the Cooperative Crop Reporting Service. A keen demand for feeder cattle existed last fall, yet only a small increase occurred in the number of cattle fed in the Corn Belt because of a tendency to increase cattle numbers on ranches in the west and an insufficient number of cattle to provide large increases in all areas. The percentage of cows and heifers in slaughter supplies has been decreasing for more than a year, a fact which further reflects the tendency of farmers to expand their herds.

Fewer spring and summer pigs were on hand on accounting farms January 1, 1939, than a year earlier, altho more spring pigs were raised in 1938 than in 1937. Farmers marketed hogs early in the fall of 1938 in an effort to avoid the expected decline in price. Marketings of hogs from October 1 through December 31, 1938, were 16 percent above that of the same period a year earlier, whereas marketings in January and February, 1939, were no larger than for the previous year.

Further expansion in hog production is indicated by the 21 percent increase in numbers of brood sows; this agrees closely with the December pig crop report which indicated a 20 percent increase in sows to farrow in the spring of 1939. There were 10 percent fewer old sows on accounting farms January 1 than a year earlier but 59 percent more gilts. About 55 percent of all sows on accounting

farms are gilts; while only 41 percent were so classified a year ago. The number of farms reporting gilts showed an increase of 38 percent during the past year.

This rapid expansion of hog production was to be expected since hog numbers were greatly reduced during the drouth years, and the hog-corn ratio has been favorable for hog production for the past 17 months. A word of caution at this time seems appropriate. The fall pig crop of 1938 plus the prospective spring crop of 1939 will total about 80 million pigs saved. This is about the number needed to give our present population a normal supply of pork but is about 15 million more hogs than will be needed to furnish a normal consumption of lard, with the present level of exports. Unless a foreign market can be found for the surplus lard, hogs should be marketed in 1939 at lighter than average weights.

A four percent increase was reported in the number of lambs on feed, but the number of farms reporting lambs was too limited to give a reliable sample.

P. E. JOHNSTON

CORN EXPORTS

Since November 1937 the corn market in the United States has been close to an export basis much of the time and prices here have fluctuated to a considerable extent with export demands. This is shown graphically in Fig. 1 which shows by months the weekly exports and the Illinois farm price of corn. Total exports during 1938 amounted to 147.5 million bushels. These unusually large exports

were caused by four circumstances: (1) the large 1937 corn crop in the United States; (2) short supplies of corn in Argentina in the winter of 1937-1938 because of heavy shipments to the United States in the summer of 1937 to supplement our short supplies at that time; (3) short supplies of feedstuffs and of wheat in Europe down to the time of their 1938 harvest; (4) the short corn crop harvested in Argentina in the spring of 1938—177 million bushels.

The export movement reached two peaks: one came in January and February, 1938, when an average of 2,300,000 bushels was exported per week and another in May, June and July, 1938. In May the average reached 4,300,000 bushels weekly, but fell off as soon as the new harvest of feed grains was available in Europe. A minor peak was again made in January 1939, but for February and March the volume declined.

From November 1937 to January 1938 the price of corn rose 7 cents a bushel, an entirely non-seasonal increase from March to July 1938 it rose again because of heavy summer exports, reach-

ing a peak of 50 cents a bushel. From August to October 1938, the price declined rapidly because of curtailed exports and heavy runs of corn in the early fall. From October 1938 to January 1939, the price rose from 36 to 44 cents—again a non seasonal rise. The high price in January coincided with the winter peak in exports altho it is likely that the holding back of corn since October under the stimulus o

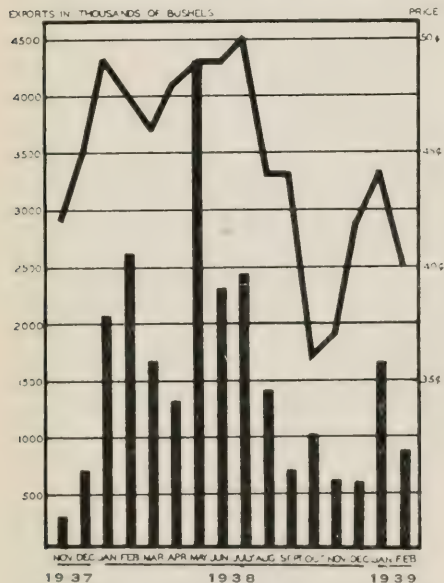


FIG. 1. UNITED STATES EXPORTS OF CORN AND ILLINOIS FARM PRICES OF CORN BY MONTHS

The bars indicate monthly exports, and the solid line represents prices.

the 57-cent loan contributed to the early winter rise. A correlation is clearly evident between price movements and exports during the last 15 months.

What of the Future? Since August exports have been retarded by the abundant supply of home-grown feed in Europe and by abundant supplies of cheap wheat in world markets, much of it shipped under the stimulus of heavy subsidies paid by various export countries. Argentina will apparently again have a short corn crop, variously estimated at about 200 million bushels compared with an average of 328 millions in the period, 1934-1938.

If the world's shipments of corn should be up to normal volume in the next 12 months, there would be room for continued exports from the United States. The large supplies of wheat, however—some of it available at feed prices—will probably reduce shipments of corn. The world carryover of wheat next July is now tentatively placed at 1,250 million bushels or about twice the 1938 figure. It is still too early to have any opinion about the size of the 1939 feed crop in Europe. Exports from this country will likely continue but in considerably smaller volume than last year.

Toward the end of February U. S. No. 2 yellow corn was quoted at Liverpool at about 71 cents, which is equivalent to about 40 cents per bushel to the farmer at Illinois country points, but there was no active foreign demand for grain at that price. Even tho heavy shipments may develop as they did last year in May, when the Great Lakes route opens up, there are large quantities of corn in storage at market centers to supply these demands. It has not been necessary to go to the country to accumulate the corn as in 1938. New crop Argentine corn is being offered for shipment at prices below current values for our corn. Even with the lower transportation costs which will prevail after the Lakes are open, it does not appear that the export market will warrant higher than the current farm price for corn unless foreign markets advance.

L. J. NORTON

FATHER-SON FARM BUSINESS RELATIONSHIPS

Provision for the continuation of a family on the same farm from generation to generation is one of the important needs for the maintenance of a permanent agriculture and a stable, wholesome community. To accomplish this end it is necessary that means be found for establishing young men on farms at the time they are ready to take up their life work. This problem is especially acute with respect to farming because fathers often expect to continue operating the farm or several years after the son reaches maturity.

Competition for good land and the increased capital investment necessary to equip a farm have made it increasingly difficult for young men to become established in farming. At the same time, jobs in industry are becoming more difficult to obtain because of increased competition.

The difficulties encountered when a mature son wishes to remain on the home farm or to return to it merit careful consideration. Altho some problems may be created, an opportunity needs to be given to young men to begin farming. Farming in Illinois as the best farmers farm, will provide a more certain income than many occupations a young man might take up.

One of the most serious considerations is whether, in view of the size, productivity, and location of the farm, it is possible, through better management, intensification, or additional rented acreage, to supply the needs of more than one family. This problem should be carefully worked out in each case. Because of the greater amount of labor and management ability available, a greater intensification of the business through dairying, livestock, or a feeding program may be feasible. Such practices may not only afford an opportunity for greater income,

but may result in better soil management and a greater degree of conservation of resources.

Crop or livestock specialties may be developed, and seed crops or breeding stock may be made a major part of the farm business. Specialized poultry or dairy enterprises may be a good means of expanding the business if the farm is near a city or medium-sized town.

There are a number of advantages in developing a plan for the management of the farm in a way which permits the son to assume full responsibility for operating the farm when the father finally retires from active operation. Such a plan further insures protection to the soil and improvements, and does not introduce some other problems likely to arise under rental to outside parties.

A problem which frequently arises between father and son is that of agreeing with each other in a strictly business-like manner. This is especially pertinent in the case of a boy who remains on the farm, since he may go on working for his father and receive "spending" money without their drawing up a satisfactory plan of farm operation which definitely recognizes the contributions of each party. It is fundamental to a successful plan that the son have an interest in the entire farm business. In the absence of an agreement which will furnish incentive to the son, he may never become vitally interested in farming. A young man raised on the farm has usually passed through a period of apprenticeship which is valuable to him if he undertakes farming as an occupation. In addition, he may have had vocational agriculture in high school or college training, and is thus in a position to render material aid to the father.

While the son may have something to offer in the way of enthusiasm, the father may have much to offer in the way of experience and judgment. In properly worked-out relationships, each should profit by what the other has to offer. It is sometimes difficult, however, for a father to recognize the value of his son's maturing thought and enthusiasm, qualities which can easily be lost through the absence of mutual respect and understanding. The relationship adopted should enlist and capitalize on the son's interest in farming.

Realizing that no two farms present quite the same problems, a general outline of some plans which may be adapted to varying conditions, will be presented.

Father-Son Plans for Farm Operation and Management. A written agreement is necessary—one which provides for a fair division of income and expenses, takes into account the basic contributions of each party, and embodies a successful plan of farm operation.

The exact nature of the agreement depends, first upon the status of the father with respect to the farm—that is, whether he is interested in continuing to carry on the farm operations without relinquishing any of his ownership in land, improvements, machinery, and livestock; whether he is willing to share part of these, letting the son acquire an interest through some definite plan of financing; or whether he is ready to retire from the operation of the farm and give the son the full responsibility. In the latter case the father may either work for the son or quit the farm business altogether, giving the son an opportunity to become a tenant, or in some cases, an owner.

Another consideration influencing the agreement is the amount which the son is able to invest in the business. In some instances he may have funds from outside sources, but in most cases he will be able to furnish only his labor unless his father arranges to finance his operations.

Ways in which sons may enter into partnership with their fathers may be classed under four main headings. Each will be discussed separately.

1. *The father owns all the land, equipment, and livestock, and the son supplies only his labor.* Under this arrangement the son is guaranteed a labor wage. If however, the father and son cooperate to increase the farm income, the son may

receive such a proportion of the total farm income as his yearly labor wage bears to the total contributions for the year. In Table 1, below, under Plan 1, the total contributions amount to \$4,163. The son's labor contribution amounts to \$600. This would entitle him, then, to approximately 15 percent of the gross farm income. This plan is simple to operate, provided basic records are kept. In using such a plan, increases or decreases in the inventory of livestock, feed, and grain should be taken into account in computing total income. Some farmers in a good financial position, may wish to increase the son's share, so that he will acquire capital more rapidly.

TABLE 1.—SHOWING THE NORMAL EXPENSES BASED ON FARM RECORDS IN
CENTRAL ILLINOIS FOR A 240-ACRE FARM IN 1937

	Plan 1		Plan 2		
	Contributions of Father Son		Contributions of Landlord Father Son		
<i>Investment Interest</i>					
Land, 240 acres at \$70	\$16 800	4½	\$756		
Dwelling	2 400	4½	108		
Other farm improvements	2 800	4½	126		
Machinery and equipment	1 500	6	90	\$ 90	
Feed and grain	1 800	6	108	108	
Livestock	2 000	6	120	120	
Expenses of Operation:					
Farm improvements (repairs and depreciation)		300	300		
Machinery		425		425	
Crop expense		315	158	157	
Feed and grain		300		300	
Taxes		240	240		
Livestock and miscellaneous		75		75	
Operator's labor (father)		600		600	
Son's labor					\$600
Totals	\$27 300		\$3563	\$600	\$1688 \$1875 \$600

2. *The father is a tenant and the son contributes only labor.* A plan similar to No. 1 may be worked out on a tenant-operated farm. It is obvious, of course, that for the enterprise to furnish satisfactory returns to father and son above the landlord's share, it must be correspondingly larger than the owner-operated farm in either acreage or volume of business, or both. The same table may be used to illustrate the manner in which father and son may compute their shares (see Plan 2). In this example the total contribution of the father and son is \$2,475; the son's contribution is \$600, so he is entitled to about 25 percent of the total tenant's share. If the volume of business were larger and the father's investment greater, the son's percentage would be correspondingly smaller.

3. *The father and son operate a farm jointly.* A plan may be worked out on much the same basis as the preceding plans except that the son will share in the investment.

In cases in which the son feels able to assume a larger obligation, he may share all investments and expenses exclusive of the land, improvements, and the usual expenses of the landlord. This may be worked out by regarding the father as landlord and the father and son as tenants entitled to equal shares in the tenants' income. Under northern and central Illinois conditions, this would ordinarily entitle the father to three-fourths and the son to one-fourth of the total farm income. In some southern Illinois areas, where the usual rental gives two-thirds to the tenant, the father would receive two-thirds and the son, one-third. This plan has an advantage over others mentioned in that it gives the son a more definite interest in the entire farm business.

4. *The father is ready to retire.* When the father, who owns the farm, is ready to retire from farming, the manager-tenant plan is a suitable one under

which the son may operate the farm. Under this arrangement, the father furnishes all equipment, machinery, and livestock, in addition to land and improvements. An equitable landlord's share in central and northern Illinois is two-thirds, with expenses of operation being shared on a similar basis—two-thirds by the owner and one-third by the tenant. This plan which is discussed in Illinois Circular 474, may be used until the son has acquired some capital and is ready to purchase machinery, equipment, and livestock and become a regular share-tenant.

If the father is able to finance him, the son may take over all equipment, machinery, and livestock at the time the father retires, and operate the farm as either a crop-share or livestock-share tenant. Under a manager-tenant or share-tenancy agreement, the father may wish to remain on the farm and contribute some labor. In such instances, an allowance in addition to his share under the agreement should be made for the value of the labor he supplies. This may be done by a wage payment or by increasing his share according to the method worked out for the son under Plan 1. In many cases under the manager-tenant plan the father's labor could be recognized by increasing his interest from two-thirds to three-fourths.

General Considerations. It is apparent that none of these plans can be operated with any degree of equity unless adequate farm records are kept. Records should be kept from the time the father-son arrangement begins. In setting up an agreement between the father and son, it is a great advantage if records of the farm business have been kept in prior years. Adequate records make it possible to make adjustments in the agreement from year to year so that each party receives an equitable share of the annual farm income. In the absence of farm accounts, the father is likely to tell the son that he can have as his share all that is raised on a particular field. This may not only be a poor measure of the son's stake in the farm business, but it may reduce his interest and initiative by denying him the right to participate in the whole enterprise. Furthermore, his field may be an odd piece of land "looking for a renter" and incapable of producing good yields of crops. It is possible, of course, for a son on nearby rented land to cooperate with the father in the use of machinery, equipment, sires, etc. Where such an arrangement can be worked out, it is highly desirable. Even in these instances, however, complete equity cannot be reached unless the parties have records which will show how much each has contributed in labor, machinery, and other costs.

On some large farms there may be a possibility of making two economic farm units or at least of providing a residence for the son separate from that of the parents. When this is possible, it should be considered. The probable increase in the amount of livestock and in acreage of legume crops and the more intensive farming which is apt to result when a large farm is made into two smaller units may not only increase the income, but may increase the value of the land.

During recent years there has been a tendency for farmers to expand their operations by renting more land. Careful studies of farm earnings show that on many farms, earnings can be increased sufficiently through more intensive operation to pay a satisfactory income to a second man. A characteristic of our modern farming is to adopt mechanized equipment and to utilize it on large acreages. As a result we have often neglected the quality of work, and the opportunity to develop livestock and other side-lines which might materially increase the income. Farm records provide evidence that, in the long run, well-managed livestock farms are most profitable. Every farmer needs to consider carefully the opportunities for improving the quality of his farming and for increasing the volume of his business before he seeks to add to his acreage.

H. C. M. CASE and H. W. HANNAH

PROSPECTIVE PLANTINGS FOR 1939

Prospective plantings of spring seeded crops in the United States as compared with those of 1938, indicate for this year smaller acreages of corn, spring wheat, oats, and cowpeas, and larger acreages of barley, soybeans, tame hay, grain sorghums, and flaxseed, according to a recent release of the Bureau of Agricultural Economics (Table 2).

TABLE 2.—INDICATED CROP ACREAGES FOR 1939 COMPARED WITH 1938 AND AVERAGE, 1929-38

	United States			
	Average 1929-38	1938	Indicated 1939	1939 as percent of 1938
	Thousand acres			
Corn.....	101,714	93,257	92,062	98.7
Tame hay.....	55,746	56,309	57,231	101.6
Oats.....	39,472	36,615	35,393	96.7
Spring wheat.....	22,393	23,515	19,505	82.9
Barley.....	12,654	11,334	13,219	116.6
Grain sorghums.....	8,389	8,582	9,779	113.9
Soybeans.....	4,716	6,858	7,691	112.1
Potatoes.....	3,361	3,069	3,076	100.2
Cowpeas.....	2,475	3,057	3,028	99.1
Flaxseed.....	2,503	1,096	2,023	184.6
	Illinois			
Corn.....	8,945	8,430	8,093	96
Oats.....	3,988	3,618	3,292	91
Tame hay.....	2,702	2,753	2,835	103
Soybeans.....	1,378	2,118	2,393	113
Cowpeas.....	190	145	174	120
Barley.....	241	158	205	130
Spring wheat.....	69	30	30	100
Potatoes.....	47	39	35	90

For crop acreages in Illinois much the same trends are evident in the major crops; of the minor crops, cowpeas indicate larger acreages than a year ago, spring wheat the same, and potatoes a smaller acreage.

While the reduction in corn acreage from 1938 is not marked, the indicated plantings point to the smallest acreage in the United States in forty years; the acreage seeded to oats will be the smallest in thirty years. On the other hand, acreages of barley and grain sorghums show marked increases. The larger hay acreage reflects favorable seasons for seeding during the past two years, and possibly some shift from grain to forage crops. The total hay acreage is affected also by the acreage of annual legumes harvested for hay. These crops show a marked increase in acreage to be planted, but the proportion which is later used for hay will depend upon developments later in the season.

¹⁻¹²The first source is for annual data; the second is for current data from which tables may be brought o date.

¹Survey of Current Business, 1936 supplement, U.S. Dept. of Commerce; subsequent monthly issues. Same as footnote 1. ²Illinois Crop and Livestock Statistics, Circular 438 (1937); monthly mimeographs of Statistical Tables for Illinois Crop Report, converted from 1910-14 = 100 to 1924-29 = 100 by multiplying by .7151. ³Agricultural Situation, Bureau of Agricultural Economics, U.S.D.A.; Agricultural Situation, converted from 1910-14 = 100 to 1924-29 = 100 by multiplying by .6486. ⁴Calculated from data furnished by Bureau of Agricultural Economics; Survey of Current Business, seasonally adjusted. ⁵Calculated by Department of Agricultural Economics, University of Illinois, seasonally adjusted. Data from Farm Income, Bureau of Agricultural Economics; B.A.E. monthly mimeograph. Receipts from Sale of Principal Farm products (government payments not included). ⁶Obtained by dividing Index of Illinois Farm Income column 6) by Index of Prices Paid by Farmers (column 4). ⁷Monthly Indexes of Non-Agricultural and National Income, Supplement, August, 1937, B.A.E.; Price and Demand Situation, or Agricultural Situation. ⁸Survey of Current Business, 1938 Revision; subsequent monthly issues, unadjusted for seasonal variation. ⁹Federal Reserve Bulletin of Federal Reserve Board, September, 1933 and subsequent issues; Survey of Current Business, seasonally adjusted. ¹⁰Preliminary estimate. ¹¹Illinois Crop and Livestock statistics, Cir. 438; Monthly price releases, State Agricultural Statistician.

TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural income ⁸	Factory payrolls ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. In money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period	1926	1926	1924-29	1924-29	1924-29	1924-29	1924-29	1924-29	1923-25	1923-25
1929	95	105	104	99	103	103	104	107	110	119
1930	86	88	89	94	83	87	93	100	89	96
1931	73	65	62	80	58	58	72	86	68	81
1932	65	48	41	69	43	43	62	68	47	64
1933	66	51	45	71	49	51	72	63	50	76
1934	75	65	61	80	57	55	69	72	64	79
1935	80	79	82	81	64	65	80	77	74	90
1936	81	81	86	80	75	82	102	87	86	105
1937	86	86	96	84	81	86	102	96	102	110
1938	79	69	69	80	70	81	101	89	78	86
Mar.	80	70	72	81	67	80	98	88	77	79
Apr.	79	68	70	81	70	85	105	87	75	77
May	78	68	69	81	68	88	109	86	73	76
June	78	69	70	80	72	84	105	85	71	77
July	79	69	74	80	83	80	101	86	71	83
Aug.	78	67	66	79	72	77	97	87	77	88
Sept.	78	68	69	78	73	73	94	90	81	90
Oct.	78	67	64	78	68	73	94	90	84	96
Nov.	78	68	66	78	70	90	116	92	84	103
Dec.	77	68	66	78	68	80	103	94	87	104
1939 Jan.	77	67	66	78	68	99	127	...	83	101
Feb.	77 ¹¹	67 ¹¹	66	78	...	...	...	...	...	99

TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS¹²

Product	Calendar year average			Current months			
	1924-29	1937	1938	Nov.	Dec.	Jan.	Feb.
Corn, bu.....	\$.81	\$.94	\$.45	\$.37	\$.42	\$.44	\$.40
Oats, bu.....	.42	.39	.24	.21	.24	.26	.25
Wheat, bu.....	1.30	1.10	.68	.56	.57	.60	.61
Barley, bu.....	.66	.84	.53	.41	.39	.40	.40
Soybeans, bu.....	1.94	1.20	.75	.60	.65	.70	.65
Hogs, cwt.....	9.97	10.11	8.06	7.40	7.00	7.10	7.50
Beef cattle, cwt.....	8.57	8.93	7.68	7.80	7.70	7.70	8.00
Lambs, cwt.....	12.22	9.58	7.76	7.80	8.10	8.10	7.90
Milk cows, head.....	78.00	61.00	60.00	62.00	61.00	64.00	67.00
Veal calves, cwt.....	11.27	9.43	8.89	9.10	8.60	8.90	9.70
Sheep, cwt.....	6.52	4.09	3.36	3.20	3.45	3.30	3.60
Butterfat, lb.....	.42	.32	.25	.24	.26	.24	.24
Milk, cwt.....	2.32	1.92	1.66	1.65	1.70	1.65	1.55
Eggs, doz.....	.30	.20	.19	.27	.26	.16	.14
Chickens, lb.....	.21	.16	.15	.13	.13	.14	.14
Wool, lb.....	.36	.32	.21	.22	.23	.22	.21
Apples, bu.....	1.59	1.18	.95	1.15	1.30	1.40	1.30
Hay, ton.....	13.38	12.41	7.65	6.60	6.20	6.10	6.40
Potatoes, bu.....	1.39	1.12	.73	.60	.70	.75	.75

¹⁻¹²For sources of data in tables see previous page.

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SOURCES AND USES OF FARMERS' INCOME

During 1937, 117 farm families located in Central Illinois kept records of their business and family receipts and expenses in both farm and home accounts in cooperation with their county Farm Bureaus and Home Bureaus and the departments of Agricultural Economics and Home Economics of the University of Illinois. In general the living expenses of these families bore a close resemblance to their cash incomes for the year, indicating that adequate incomes enable farm families to enjoy a good standard of living.

Sources of net cash receipts.—Cash income from the farm business was the most significant source of income, altho other sources, such as labor off the farm, income from investments, and gifts and inheritances, contributed a part. Some families in the lower income groups were able to meet living expenses only by borrowing in connection with their farming operations because of expanding the size of their farming businesses. Many of the families that had high cash incomes received a substantial portion of them from earnings on investments outside the farm business and from labor off the farm.

TABLE 1.—SOURCES OF NET CASH RECEIPTS

Group	No. of farms	Size of farm acres	Average total net cash receipts	Farm cash balance	Family labor off farm	Earnings on investments	Gifts and inheritance	Net borrowing and past investments used
Under \$999.....	8	203.1	\$ 821	\$ 246	\$ 84	\$ 64	\$ 5	\$ 422
\$1000-1999.....	48	216.6	1490	908	54	70	9	449
\$2000-2999.....	29	265.7	2558	1669	68	71	203	547
\$3000-3999.....	17	338.2	3461	1977	287	320	29	848
\$4000 and over.....	15	295.7	5541	3544	551	141	37	1235
Total, average....	117	255.7	\$2515	\$1545	\$157	\$115	\$ 64	\$ 634

In order to secure a sufficient income to attain a desirable level of living, both the size of the farm business and the efficiency with which it is managed are of prime importance. From the average number of acres shown in Table 1, it is apparent that even the low-income families had fairly large farms. A difference, however, of 92 acres between the low-income and the high-income groups shows that the area of the farm is important.

That differences in net cash receipts were not due entirely to variations in size of business is shown by the following comparison of the rates earned on the total farm investment by the different groups: those having net cash receipts under \$999 earned 3.78 percent; those having \$1,000 to \$1,999, 6.69 percent; those having \$2,000 to \$2,999, 7.33 percent; those having \$3,000 to \$3,999, 6.34 percent; and those with more than \$4,000, 8.51 percent. Thus efficiency of management was an important factor in determining the amount of cash available.

Use of income.—The use made of the incomes on these farms was classified into cash living expenses, life insurance premiums, interest payments, debt

payments and investments. These families used more than one-half (53.5 percent) of their net cash receipts to pay living expenses. The proportion of available cash spent for living fell off rapidly as the net cash receipts increased (Fig. 1).

The proportion of net cash receipts that was used to pay life insurance premiums and interest did not change greatly as income increased. The actual

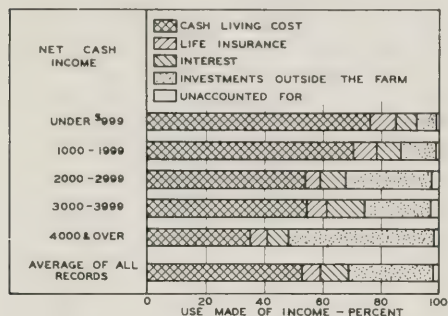


FIG. 1.—USE MADE OF FARM INCOME AT DIFFERENT INCOME LEVELS

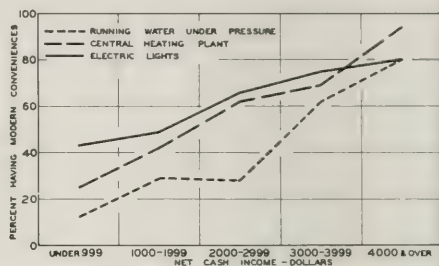


FIG. 2.—AT THE HIGHER INCOME LEVELS A LARGER PROPORTION OF FARM FAMILIES CAN AFFORD MODERN CONVENIENCES

amount spent for these items, however, was larger for the higher-income families. Since a smaller part of the available cash of the higher-income families was needed for living, they had more for payment of debts, the purchase of farms, and for other investments. One-third of these families had modern homes in the sense that they had electric lights, a central heating plant, and running water under pressure. Many other families had one or two of these conveniences. The proportion of families having each was directly associated with the amount of net cash receipts (Fig. 2). In other words, before these conveniences can be obtained, the net cash income must be sufficient to meet the cost of installation and operation. The location of the farm with reference to power lines also had considerable influence on whether the family had electricity. The rapid increase in the proportion of families having central heating plants as incomes increased shows that farm families consider this to be one of their most pressing needs.

Value of farm-furnished goods.—A considerable part of the living of the farm family is represented by the food, fuel, and housing furnished by the farm. For the 117 farm families these items averaged \$646 or nearly one-third (32 percent) of the total money value of the living for the year (Table 2). The home-produced foods, including dairy and poultry products, meats, cereals, vegetables and fruits, valued at retail prices, averaged \$401 per family; this was equivalent to nearly two-thirds of the total goods and services furnished by the farm and to 60 percent of the total food bill. With an average of 4.2 persons per household each person received \$95 worth of food from this source.

The estimated use value of the house amounted to \$227 for the 117 families, based upon what similar homes would rent for in nearby towns, and considering the investment in the house and its plumbing, lighting, and heating facilities.

The total value of farm-furnished goods increased regularly by income groups. In general, the value of foods furnished followed closely the size of family; the larger part of the increase, however, was because of the greater use value of the dwelling for the higher-income groups.

TABLE 2.—NON-CASH INCOME FROM THE FARM

Net cash receipts group	Number of records	Money value of furnished foods ^a	Estimated use value of house	Fuel, soap and gifts	Total	Number of household	Money value furnished food per capita
Under \$999.....	8	\$310	\$132	\$16	\$458	3.9	\$79
\$1000-1999.....	48	389	209	17	615	4.0	97
\$2000-2999.....	29	403	227	21	651	4.1	98
\$3000-3999.....	17	395	265	20	680	4.0	99
\$4000 and over.....	15	493	295	8	796	5.3	93
Total and average...	117	\$401	\$227	\$18	\$646	4.2	\$95

^aValued at retail prices.

Copies of the complete report are obtainable from the Department of Agricultural Economics, University of Illinois.

N. O. THOMPSON and H. C. M. CASE

SOME RECENT CHANGES IN TRANSPORTATION OF GRAIN

Transportation of Illinois grain by river barge and motor truck increased during 1938. These two methods of transport are closely related, inasmuch as grain must be assembled at the river by truck. The quantities of grain shipped from points on the Illinois River in 1938 were as follows:¹

	Bushels
Corn.....	16,058,000
Wheat.....	1,161,000
Oats.....	603,000
Soybeans.....	420,000
Rye.....	72,000
	18,314,000

An additional 155,000 bushels of grain moved on the river but originated in other states; this includes one lot of soybeans shipped from Arkansas to Chicago.

This volume of 18.3 million bushels is nearly three times the total of 6.5 millions handled in 1937.² This increase reflects the operation of a larger number of elevators for a full year, better crops in the southern part of this territory, higher railroad freight rates in part of the territory, and an active demand for corn for export at New Orleans and Chicago, both of which can be reached by river. The underlying basis for the growth of the traffic is that under existing rate conditions grain can be moved more cheaply by truck and barge than by rail between farms in the river area and terminals which are accessible to the river.

The principal points of origin from north to south, not in order of importance, but with the more important in italics, were *Morris*, *Ottawa*, Hennepin, Henry, Lacon, Chillicothe, Peoria, *Pekin*, *Havana*, Naples, and Montezuma. Two firms were of outstanding importance in this trade.

In 1938 the two principal terminals for this grain were Chicago and New Orleans. Minor terminals were: New Madrid, Missouri—port for Sikeston, Missouri—Memphis, Tennessee; St. Louis, Missouri; and Vicksburg and Greenville, Mississippi.

Provided adequate water is available, this trade can be expected to flourish, as long as the comparative transportation costs of 1938 prevail, particularly at times of strong demand for grain to reship from New Orleans or Chicago. The river

¹Based on information from Chicago Board of Trade, Federal Barge Lines, and operators of elevators on the river.

²See AE 864, a mimeographed report issued by Department of Agricultural Economics, University of Illinois.

shipments will affect the grain markets for distances of thirty to forty miles from the river.

Movement on the Upper Mississippi River.—In 1938 a similar traffic developed from points on the Upper Mississippi River between Davenport and Burlington, Iowa. Shipments were made from two Illinois points, Keithsburg in Mercer County and Oquawka in Henderson County. The quantities handled by the Federal Barge Lines, the principal carriers in this trade, from Illinois and Iowa points in 1938 were:

	Bushels
Corn.....	7,267,000
Wheat.....	441,000
Soybeans.....	103,000
Oats.....	100,000
Rye.....	4,000
	<hr/> 7,915,000

Of this, 1,571,000 bushels originated at Illinois points.

The principal outlet was New Orleans with Memphis, St. Louis, Cairo, and Greenville and Vicksburg, Mississippi, of minor importance. This movement clearly developed on such a scale in response to the export trade in corn thru New Orleans and presumably will continue whenever export outlets are available and corn supplies are abundant in the area. The relative advantages in freight costs by use of the river are much greater on shipments from this area to New Orleans than on shipments from points on the upper Illinois River to Chicago. In fact, it is quite possible that without this cheap water outlet this area would not have been able to participate in the export trade in corn.

Movement to market by truck. Direct truck movement of grain into terminal market areas also increased in 1938. Again the response was to cheaper transportation costs. The quantities delivered by truck at Chicago in 1938 follow:

	Bushels
Corn.....	2,627,000
Wheat.....	481,000
Soybeans.....	181,000
Oats.....	65,000
Rye.....	19,000
Barley.....	1,000
	<hr/> 3,374,000

This total was more than seven times as large as in the previous year and reflects the activities of two firms operating terminal grain elevators in that market. In some cases the grain was bought directly from the farmers; in other cases thru local elevators.

In the Pekin-Peoria area direct deliveries were affected by purchases by the river elevators and by the location within the switching district of local elevators, which bought directly from farmers. The direct movement of grain by truck into the market area is increasing.

In St. Louis receipts of grain by wagon and truck were reported at 581,000 bushels in 1938 compared with 576,000 bushels in 1937. This was chiefly wheat. An increasing quantity, however, of "no tonnage" grain is being sold on the Merchants Exchange in St. Louis. This is grain loaded within the switching district. Some of this grain was raised on land located within this district but a substantial part was trucked into it. Comparative quantities of such grain in car loads follow:¹

	Corn	Wheat	Total
1937.....	17	409	426
1938.....	478	626	1104

¹Based on information from Traffic Commissioner, St. Louis Merchants Exchange.

The total in 1938 represented about 1,650,000 bushels of grain.

Grain received by truck at central markets cannot be reshipped on lower reshipping rates which apply on most grain received by rail; hence, it may sell at a discount. For local consumption, for manufacture of products for local distribution, or for reshipment by water, it may be worth as much as grain received by rail. The comparative value of rail and truck grain varies with the market and with current conditions.

Conclusion. 1. In 1938 there was a marked increase in use of trucks and river barges in transporting Illinois grain to market and so long as 1938 differences in transportation costs prevail, this trend will likely continue.

2. This situation will affect the marketing of grain by farmers and operators of grain elevators in the areas influenced by the new developments. Marketing agencies must face the problem of the adjustments in their operations that the new developments make necessary.

L. J. NORTON

RECENT TRENDS IN POWER AND LABOR COSTS ON ILLINOIS FARMS

Revolutionary changes in the use of labor, power, and machinery on corn belt farms have occurred during the last fifteen years. Some of the more important trends in this period may be described as follows: (1) there has been a gradual shift from horses to standard type tractors, and from standard type to general-purpose tractors; (2) the use of complicated and expensive machinery, such as combines, corn pickers, and pick-up balers has increased rapidly, and the use of motor cultivation for row crops has become important; (3) the number of work horses per farm in Central Illinois has been reduced fifty percent, the number of hours worked per horse has declined 40 percent, while the cost per hour for horse labor in 1936 and 1937 was the same as for 1923 and 1924 even though the annual cost of keeping a horse declined 36 percent; (4) the number of hours of use per tractor has doubled and the cost per hour has been cut in half because of increased use and efficiency; (5) the hours of labor per farm declined 30 percent, the hours of productive work per month of available labor declined almost 25 percent, (farm operators worked 56 days less in 1937 than in 1932); (6) each year since 1930 the total cost per crop acre for labor, horses, and machinery in Central Illinois has been practically the same for farms using horses, standard tractors, and general-purpose tractors.

On some farms, the changes enumerated above have in turn caused adjustments in the cropping system, the livestock organization, or even in size of farm. Farm records indicate that changes are made rather slowly so that labor and power costs are often increased during the period of adjustment even though they may be reduced eventually. Often the addition of a standard tractor, tractor plow, and tractor disc resulted in an increase in the total cost for power and machinery since too few horses were sold and capital was invested in both horse and tractor equipment. In like manner the addition of a general purpose tractor often resulted in a surplus of power inasmuch as a standard-type tractor was often kept and too few horses were displaced. Many farmers had two types of equipment for cultivating corn, and both a binder and a combine. Such conditions are not found on all farms, but records reveal that duplication of power and equipment is a major problem on corn belt farms, and indicate that each farmer should study his power and machinery organization to make sure that total labor, horse, and machinery costs are reduced to the minimum consistent with a well tilled farm.

Use and cost of horse labor. In the last fifteen years the number of horses and mules in the United States declined from 24 million to 15.6 million. This decline of 8.4 millions has released about 35 million acres of land to produce feed

for cattle, hogs, and sheep, thus adding to the difficulties of disposing of crops and livestock in years of largest production.

The decline in the amount of work done with horses has influenced the cost per hour of work done. The following data indicate clearly some of the changes in the utilization and cost of horse power:

	1923-1924	1932-1933	1936-1937
Number of work horses per farm.....	9.0	6.8	4.2
Feed cost per horse.....	\$76	\$31	\$58
Net cost per horse.....	\$117	\$49	\$75
Hours worked per horse.....	766	761	470
Cost per hour of horse labor.....	\$.15	\$.065	\$.155

Although there has been a steady decline in the number of horses per farm since 1923, the hours worked did not decline drastically until after 1933. A record low of 418 hours per horse was reached, however, in 1937, at which time the cost per hour was higher than for 1923-24, altho the yearly cost was only 64 percent as high. The annual cost of keeping a horse includes charges for feed, labor, interest, shelter, veterinary charges, and depreciation, with credits for young stock raised and for manure. The period 1931 to 1935 was characterized by low feed costs, the cost per hour for horse labor did not exceed 11 cents, and the percentage of accounting farms operated with horses changed but little. When feed costs increased as the result of the drouth there was again a rapid shift to tractors, particularly to the type used for cultivating row crops. On Central Illinois accounting farms the proportion using horses only was 25 percent from 1930 thru 1934, but dropped to 20 percent in 1935, to 14 percent in 1936, and to 10 percent in 1937. The proportion using horses and general-purpose tractors increased from 13 percent in 1930 to 70 percent in 1937; those using horses and standard tractors declined from 61 percent in 1930 to 20 percent in 1937.

Tractor Use and Costs. Tractor use averaged about 340 hours a year for two plow tractors prior to their use for cultivating row crops (1924-29). The hours of use increased rapidly in the years 1930 to 1932, when the average was 632 hours (Table 3). For the past six years the average use has been about 600 hours per year. The cost per hour was 85 cents for the period 1924-29, and 45 cents for the period 1932-37. Michigan State College reported an average hourly cost of 59 cents for two plow tractors used 288 hours a year for the years 1934-37. The University of Minnesota reported an average cost of 49 cents an hour for two plow tractors used 629 hours a year for the five years 1933-37. Yearly tractor costs include charges for fuel, lubricants, repairs, depreciation, interest, and labor for servicing. The cost per hour declines as the hours of use per unit increase, whether the power be horses or tractors.

Use of Labor. The hours of labor per farm declined from 6678 in 1924 to 4317 in 1937 and the hours per 100 acres from 2619 to 1611, because of the reduction in number of horses per farm and increased use of tractors. One phase of this change is not usually recognized and is not so easily explained,—the decline in the hours of work performed for each month of available labor. In 1923, 25 hours of labor were devoted to the farm business for each month of labor available while by 1937 this figure had declined to 190 hours. The operator accounted for a part of this reduction since they worked 567 fewer hours in 1937 than in 1932. This means that they had at least 56 more days for recreation, meetings, planning the farm business, etc. As evidence that this situation is not true on all farms, records show that many individuals increased the size of the farm, or the amount of livestock when the tractor was added. On many farms there is an opportunity to reduce labor, power, and machinery costs or to increase the gross income by increasing the volume of business. That some farmers have done both these things may account, in part at least, for the \$3,000 greater net income

TABLE 3.—USE OF LABOR, HORSES, AND TRACTORS, COST RECORDS,
CHAMPAIGN AND PIATT COUNTIES 1923-1937

Year	Crop acres per farm	Man labor			Work horses				Two plow tractors		
		Hours per farm	Hours per month of available labor	Cost per hour	Number per farm	Hours worked per horse	Annual cost per horse	Cost per hour	Cost per year	Hours used	Cost per hour
1923	231	6209	251	\$0.23	9.2	741	\$123	\$0.16	....	...	....
1924	225	6678	243	.24	8.8	791	111	.14	\$321	376	\$0.87
1925	236	6288	231	.26	8.3	793	116	.15	285	385	.62
1926	228	5074	218	.28	7.5	789	104	.13	249	253	1.07
1927	253	5372	220	.29	7.8	781	104	.13	255	342	.83
1928	203	5614	238	.28	7.5	745	103	.14	272	303	.92
1929	219	5679	232	.28	7.4	705	104	.15	282	397	.77
1930	229	5746	226	.25	7.3	756	101	.13	322	526	.66
1931	239	6246	232	.21	7.0	711	78	.11	290	604	.48
1932	259	6170	233	.16	7.0	818	51	.06	293	765	.38
1933	236	5253	217	.16	6.5	705	47	.07	255	646	.40
1934	208	4314	206	.17	5.9	606	58	.10	263	570	.54
1935	219	4259	199	.24	4.9	584	63	.11	218	481	.45
1936	224	4742	195	.23	4.5	521	81	.15	279	609	.46
1937	234	4317	190	.35	4.0	418	68	.16	224	488	.46

that they receive more than their neighbors who operate farms of the same kind.

Farmers are interested in reducing costs as a means of increasing the net farm income. To save on labor or machinery use to such an extent that crop yields are reduced, or that livestock is poorly cared for is to be penny wise and pound foolish.

The opportunity to lower horse and machinery expenses is demonstrated by records from 200 Central Illinois farms for the three-year period, 1935-37. The 40 farmers who were most efficient in the use of horses and machinery spent \$1.90 an acre for these items, whereas the 40 least efficient farmers spent \$3.82 an acre. This difference in expenses was equal to about \$500 a year for a farm of average size for this group—a worthwhile reward for careful management.

P. E. JOHNSTON and R. H. WILCOX

¹⁻¹²The first source is for annual data; the second is for current data from which tables may be brought to date.

¹Survey of Current Business, 1936 supplement, U.S. Dept. of Commerce; subsequent monthly issues. Same as footnote 1. ²Illinois Crop and Livestock Statistics, Circular 438 (1937); monthly mimeographs of Statistical Tables for Illinois Crop Report, converted from 1910-14 = 100 to 1924-29 = 100 by multiplying by .7151. ³Agricultural Situation, Bureau of Agricultural Economics, U.S.D.A.; Agricultural Situation, converted from 1910-14 = 100 to 1924-29 = 100 by multiplying by .6486. ⁴Calculated from data furnished by Bureau of Agricultural Economics; Survey of Current Business, seasonally adjusted. ⁵Calculated by Department of Agricultural Economics, University of Illinois, seasonally adjusted. Data from Farm Income, Bureau of Agricultural Economics; B.A.E. monthly mimeograph. Receipts from Sale of Principal Farm products (government payments not included). ⁶Obtained by dividing Index of Illinois Farm Income (column 6) by Index of Prices Paid by Farmers (column 4). ⁷Monthly Indexes of Non-Agricultural and National Income, Supplement, August, 1937, B.A.E.; Price and Demand Situation, or Agricultural Situation, Survey of Current Business, 1938 Revision; subsequent monthly issues, unadjusted for seasonal variation. ⁸Federal Reserve Bulletin of Federal Reserve Board, September, 1933 and subsequent issues; Survey of Current Business, seasonally adjusted. ⁹Preliminary estimate. ¹⁰Illinois Crop and Livestock statistics, Cir. 438; Monthly price releases, State Agricultural Statistician.

TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural income ⁸	Factory payrolls ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. In money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period	1926	1926	1924-29	1924-29	1924-29	1924-29	1924-29	1924-29	1923-25	1923-25
1929	95	105	104	99	103	103	104	107	110	119
1930	86	88	89	94	83	87	93	100	89	96
1931	73	65	62	80	58	58	72	86	68	81
1932	65	48	41	69	43	43	62	68	47	64
1933	66	51	45	71	49	51	72	63	50	76
1934	75	65	61	80	57	55	69	72	64	79
1935	80	79	82	81	64	65	80	77	74	90
1936	81	81	86	80	75	82	102	87	86	105
1937	86	86	96	84	81	86	102	96	102	110
1938	79	69	69	80	70	81	101	89	78	86
May	78	68	69	81	68	88	109	88	73	76
June	78	69	70	80	72	84	105	87	71	77
July	79	69	74	80	83	80	101	88	71	83
Aug.	78	67	66	79	72	77	97	89	77	88
Sept.	78	68	69	78	73	73	94	90	81	90
Oct.	78	67	64	78	68	73	94	90	84	96
Nov.	78	68	66	78	70	90	116	92	84	103
Dec.	77	68	66	78	68	80	103	95	87	104
1939 Jan.	77	67	66	78	68	99	127	92	83	101
Feb.	77	67	66	78	60	82	105	92	85	98
Mar.	77	66	66	78	64	...	...	92	87	98
Apr.	76 ¹¹	65 ¹¹	64 ¹¹	78	...	...	...	...	...	...

TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS¹²

Product	Calendar year average			Current months			
	1924-29	1937	1938	Jan.	Feb.	Mar.	April
Corn, bu.....	\$.81	\$.94	\$.45	\$.44	\$.40	\$.40	\$.40
Oats, bu.....	.42	.39	.24	.26	.25	.26	.26
Wheat, bu.....	1.30	1.10	.68	.60	.61	.61	.61
Barley, bu.....	.66	.84	.53	.40	.40	.42	.41
Soybeans, bu.....	1.94	1.20	.75	.70	.65	.70	.75
Hogs, cwt.....	9.97	10.11	8.06	7.10	7.50	7.40	6.80
Beef cattle, cwt.....	8.57	8.93	7.68	7.70	8.00	8.20	8.60
Lambs, cwt.....	12.22	9.58	7.76	8.10	7.90	8.00	8.60
Milk cows, head.....	78.00	61.00	60.00	64.00	67.00	67.00	63.00
Veal calves, cwt.....	11.27	9.43	8.89	8.90	9.70	9.80	9.20
Sheep, cwt.....	6.52	4.09	3.36	3.30	3.60	3.90	4.00
Butterfat, lb.....	.42	.32	.25	.24	.24	.22	.20
Milk, cwt.....	2.32	1.92	1.66	1.65	1.55	1.50	1.45
Eggs, doz.....	.30	.20	.19	.16	.14	.14	.14
Chickens, lb.....	.21	.16	.15	.14	.14	.14	.14
Wool, lb.....	.36	.32	.21	.22	.21	.21	.21
Apples, bu.....	1.59	1.18	.95	1.40	1.30	1.40	1.40
Hay, ton.....	13.38	12.41	7.65	6.10	6.40	6.30	6.30
Potatoes, bu.....	1.39	1.12	.73	.75	.75	.80	.80

¹⁻¹²For sources of data in tables see previous page.

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 Director, Extension Service in Agriculture and Home Economics, University of Illinois

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Numbers 49 and 50

THE COMPETITIVE POSITION OF SOYBEAN OIL

The competitive position of soybean oil in the market for animal and vegetable fats and oils may be summarized as follows:

The average annual consumption of such fats and oils in the United States is more than 9 billion pounds annually, of which approximately two-thirds is used for food, one-sixth for soap, one-twelfth in the drying industries, and one-twelfth for miscellaneous purposes. (Fig. 1.)

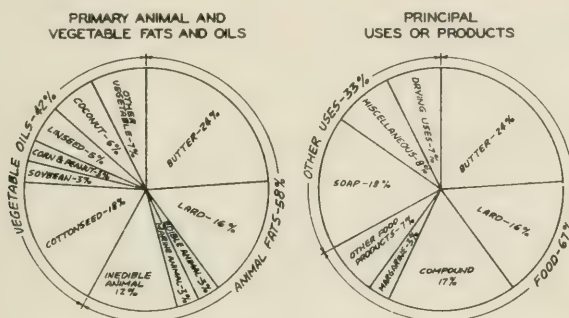


FIG. 1.—SOURCES AND USES OF FATS AND OILS, UNITED STATES

During the 4 years, 1935-38, the average annual consumption of soybean oil was 203 million pounds, or about 2 percent of the total for all fats and oils. During this period soybean oil was used as follows:

	percent
In compound (lard substitute).....	50
In margarine.....	10
In other edible products (as salad and cooking oils).....	8
In the drying industries (paint and varnish, linoleum and oilcloth, and printing ink).....	10
In soap.....	8
In miscellaneous uses.....	2
Unaccounted for.....	12
Total.....	100

More than two-thirds of the soybean oil was used in food products. The principal competing food fats are butter, lard, and cottonseed oil; the minor competing food oils are the edible animal fats (largely from beef cattle), coconut oil, corn oil, peanut oil, and several less important foreign vegetable oils. Soybean oil competes with butter through margarine, with lard through compound, and with cottonseed oil directly in the manufacture of compound, margarine, and other food products. The principal oils used in compound are cottonseed, soybean, and palm oils; in margarine cottonseed, coconut, and soybean oils; and in other food products cottonseed, coconut, and corn oils. Table 1.

Soybean oil is used freely in the manufacture of compound and margarine when it is available at a competitive price, apparently at least one cent per pound

TABLE 1.—CONSUMPTION OF ANIMAL AND VEGETABLE FATS AND OILS IN THE UNITED STATES, BY CLASSES OF PRODUCTS, IN 1938¹

Fat or oil	Total domestic disappearance	Reported factory consumption:						Other uses ⁷
		Compound ²	Margarine	Other edible products ³	Soap and loss ⁴	Drying uses ⁵	Miscellaneous products ⁶	
Domestic animal fats:	mil. lbs.	mil. lbs.	mil. lbs.	mil. lbs.	mil. lbs.	mil. lbs.	mil. lbs.	mil. lbs.
Butter.....	2,205	3	1	6	...	...	...	2,205
Lard.....	1,443	...	...	...	...	...	...	1,433
Edible animal fats ⁸	225	107	17	8	...	...	1	92
Marine animal oils ⁹	258	17	...	...	146	63	31	1
Inedible fats ¹⁰	1,129	...	...	...	799	...	146	184
Domestic vegetable food oils:								
Cottonseed oil.....	1,665	1,040	143	198	144	*	3	137
Soybean oil.....	305	143	40	11	25	19	5	62
Corn oil.....	148	...	1	57	11	*	3	76
Peanut oil.....	90	52	4	2	5	...	*	27
Imported non-drying oils:								
Coconut oil.....	605	26	90	61	374	*	4	50
Palm oil.....	262	115	*	*	118	*	20	9
Other vegetable oils ¹¹	273	9	15	34	81	9	35	90
Drying oils:								
Linseed oil (½ imported).....	490	...	...	...	1	480	9	...
Tung oil (imported).....	95	...	...	...	...	92	3	...
Perilla oil (imported).....	42	...	...	...	...	41	1	...
Totals.....	9,235	1,512	311	377	1,704	704	261	4,366

*Less than 500,000 pounds. ¹Based upon Bureau of the Census data. ²Vegetable shortenings, or lard substitutes. ³Salad and cooking oils, sandwich spreads, etc. ⁴Loss is probably about one-tenth of figures given. ⁵Paints and varnish, linoleum and oilcloth, and printing ink. ⁶For linseed, tung, and perilla oils, the figures are total disappearance minus small quantities reported used for miscellaneous products. ⁷Industrial uses, such as lubricants, leather dressings, core oils, candles and cosmetics. ⁸A balancing item—represents the difference between reported factory consumption and total domestic disappearance. ⁹Edible tallow, edible animal stearin, and oleo oil. ¹⁰Whale, fish, and fish liver oils. ¹¹Inedible tallow, grease, neat's-foot oil, and wool grease. ¹²Olive, palm-kernel, babassu, sesame, rapeseed, castor, teaseed, and oilteica oils.

cheaper than cottonseed oil. The utilization of soybean oil in compound and margarine has increased greatly during the last two years, but in other food products, such as salad and cooking oils, its use has been decreasing.

During the last 4 years the drying industries, which include paint and varnish, linoleum and oilcloth, and printing ink, used 10 percent of the total disappearance of soybean oil. The various oils used in these industries are less interchangeable than those used in manufactured food products; hence, soybean oil does not compete on a price basis. Linseed oil is the principal drying oil, comprising in 1938 71 percent of the total compared to 3 percent for soybean oil. The remaining 26 percent consisted of fish oil, tung oil, and perilla oil, which are used for their special properties, and are not directly competitive with soybean oil. Tung and perilla oils, because of their rapid drying qualities, are often mixed with the slow drying soybean oil, and are complementary to rather than competitive with soybean oil. The use of soybean oil for drying purposes has increased very slowly in recent years, even though its price has been much below those of linseed, tung, and perilla oils.

When used for soap, non-hydrogenated soybean oil competes with cottonseed oil foots and other foots, which are the cheapest of oils. When hydrogenated, soybean oil competes with inedible tallow, grease, palm oil, and hydrogenated whale and fish oils, all of which are low-priced soap materials. Consequently it does not appear that a strong demand will develop for soybean oil for soap making.

Only small quantities of soybean oil are used for miscellaneous purposes, such as lubricants, leather dressings, candles and cosmetics. Oils used for such purposes are either cheap materials such as grease and inedible tallow, or oils such as

castor oil, neat's-foot oil, and palm oil, which have certain properties which render them especially adapted for particular uses. It seems unlikely that any special use will develop to the point where it will absorb the bulk of the soybean oil output, except at low prices.

L. H. SIMERL

LANDLORD-TENANT PROBLEMS IN THE ST. LOUIS MILKSHED

In a number of Illinois counties in the St. Louis milkshed more than 50 percent of the farms are tenant operated. For many years the production of fluid milk for the St. Louis market has been a major enterprise in the area. With the approval on December 15, 1936, by the City of St. Louis of a new ordinance regulating the "... production, handling, and sale of milk products ..." new problems in landlord-tenant relationships have arisen, since the new standards affect not only the tenants' market but also farm improvements which are customarily the responsibility of the landlord.

The following brief outline contains the important requirements for farms if the milk can be classified as Grade A.

Dairy Barns: (1) Adequate window space. (2) Adequate ventilation. (3) Adequate room to prevent overcrowding. (4) Floors and gutters of concrete or an approved impervious and easily cleaned material, properly graded to drain; shall be kept in good repair. (5) Walls and ceilings: Whitewashed each year or painted every two years—oftener if necessary—or finished in an approved manner and kept in good repair; tight ceiling in case of a second floor above cows; dust-tight partition and door if feed room adjoins the milking room; no feed may be stored in milking part of barn. (6) Cow yards graded and drained as well as practicable. (7) Manure must be removed or stored.

Milk Room or House: (1) For cooling, handling, storage of milk, and washing, treatment, storage of utensils. (2) Floor of concrete or impervious material, graded to drain—kept in good repair. (3) Walls and ceilings easily cleaned—painted or finished. (4) Lighted, ventilated, screened; self-closing doors. (5) Water must be piped into room. (6) Water heater necessary. (7) Wash and rinse vats partitioned.

Toilet: (1) Sanitary, convenient. (2) Properly constructed, operated, and maintained so that waste is inaccessible to flies and does not pollute surface soil or contaminate water supply.

Water Supply: For milk room and dairy barn shall be properly located, constructed, and operated; accessible; adequate; safe. Convenient facilities for the washing of milkers' hands are required.

The enforcement of these requirements forced a large number of dairy farmers in the area off the Grade A market as evidenced by the withdrawal of about $\frac{2}{3}$ of the members of the Sanitary Producers from the inspected market.

To obtain information about the extent to which tenancy and other factors were responsible for so large a withdrawal, and to ascertain what changes were taking place in farm organization, the Department of Agricultural Economics conducted a survey of 94 tenant-operated farms in Clinton, Madison, and St. Clair Counties, visiting only farms not selling on the inspected market. Most of these farmers withdrew when the revised ordinance became effective.

When asked why they had stopped selling Grade A milk, 54 answered that they could not meet the requirements of the ordinance. An adequate barn and milk house were the most frequent shortcomings. Sixteen indicated a dislike of the inspection and supervision necessary. Other reasons were: price too low; enterprise too small; and other markets just as profitable.

It is apparent that substantial shifts in farm enterprises are taking place. Twenty-one men have introduced hogs, beef cattle, or feeders as a new enter-

prise; nine indicated that they intend to do so. Eight men are now keeping more hogs and feeders than formerly; 11 others intend to keep more. Quite a number have enlarged or intend to enlarge, the poultry enterprise; some are selling more cash grain and a few plan on keeping sheep. Practically all are still milking cows, but the herds have been reduced from an average of 8.8 to 5.7 cows, and the milk is being sold to a condensery or other uninspected market. Three men are selling cream; three others intend to do so. Three farmers had sold out and quit farming, three others were engaged mainly in other occupations; four men indicated that they intended to quit farming; four tenants were on relief.

Thirty-five felt that what they are now doing or intend to do would be as profitable as selling Grade A milk; twenty-eight, less profitable, and thirty-one were uncertain. Few had carefully compared the costs and expected returns of selling Grade A milk with those of other enterprises.

The average of 51 estimates on the cost of making improvements so they could comply, was \$398.00 per farm. Over half, or 50, indicated that their landlords were unwilling to make additional expenditures; 37 had not talked the matter over with their landlords. Most in this latter group had assumed that it was useless to ask for anything further. Five tenants reported that their landlords would make some improvements; and five that landlords would make all necessary improvements. The reasons most frequently given for unwillingness of landlords to make improvements were: (1) Not financially able. (2) Do not consider it a good investment. (3) Tenant is not interested and has not urged landlord. (4) Landlords old, absentee, absorbed by private business, or otherwise uninterested.

Sixty percent indicated that the landlord would allow them to make necessary improvements if they cared to do so at their own expense, and ten percent would be interested in a lease or contract compensating them for the unexhausted value of such improvements if they were later required to quit the farms.

Since a large number (64) indicated that they do not intend to go back on the market, and according to their estimates, herds would need to be increased from an average of 5.7 cows to 13.8 cows to make the enterprise profitable, it is evident that there exists a basic farm management problem which cannot be solved wholly through the landlord-tenant approach. It does seem, however, that for farmers who desire to continue selling Grade A milk, a substantial contribution can be made toward the solution of the problem by giving consideration to the landlord-tenant relationship as it affects this situation.

Most of the improvements required by the ordinance are buildings or permanent fixtures, hence are part of the real estate and historically, at least, are the landlord's responsibility. An important problem is thus created for both landlord and tenant. The landlord must decide to what extent he is justified in making the improvements necessary for an increasingly specialized farm business, and the tenant must decide how much additional rent he can pay for the increased amount of property the landlord is supplying.

In answering these questions, three possible situations may be assumed: (1) the landlord makes all the necessary improvements and seeks compensation from the tenant through increased rent; (2) the tenant makes all the improvements and requests compensation from the landlord for the unexhausted value of such improvements remaining at the termination of his tenancy; and (3) the landlord and tenant share, in some proportion, the cost of improvements. In the latter case, the tenant would be entitled to compensation for the unexhausted value to the extent of his share in the original expense if required to quit the farm.

Certain items are naturally the tenant's responsibility, such as making ordinary repairs to buildings and equipment and hauling manure.

Where the landlord chooses to make all the improvements, the problem arises of how much additional rent he should charge. He can calculate this by adding to his present contributions the additional taxes, depreciation, insurance, and interest on investment required to comply with the ordinance, and determining either what additional contributions the tenant will need to make or how much additional rent he will need to pay to achieve an equitable balance under the terms of the lease.

The following advantages may be cited in favor of having the landlord make the necessary improvements:

1. Assuming that dairying will continue in the area, the landlord will likely want to continue dairying on the farm, and will be interested in maintaining the necessary improvements.

2. The landlord may be more able financially, or have a better chance of procuring credit because of his ownership and because the improvements become a part of the realty.

3. Rental adjustments may be carried out more successfully than provisions for compensating the tenant.

4. Because a dairy herd utilizes large amounts of pasture and hay, provision for this enterprise tends to prevent erosion and soil depletion and thus protects the capital investment in land.

Where the landlord is unwilling or unable to make the necessary improvements the tenant, if financially able, or capable of securing credit, may make such improvements under an agreement that he shall be compensated for their unexhausted value remaining at the termination of the tenancy. This agreement should be either a part of the lease or evidenced by a separate written instrument signed by the parties. Adequate supporting information in the form of bills of sale, receipts, vouchers, and other documents showing material, labor, and financing costs should be maintained by the tenant.

A sufficient lease provision could be stated as follows:

"The tenant may, with the consent of the landlord, make such improvements of either a temporary or a permanent nature as are necessary to bring the farm into compliance with the requirements of the St. Louis Milk Ordinance and any regulations issued under it.

"At the termination of this tenancy, the landlord, upon presentation by the tenant of adequate information on the cost of any improvements made by him, shall reimburse the tenant for the unexhausted value of such improvements.

"In case the parties cannot agree on the unexhausted value or on any other question relating to such improvements, they shall refer their questions, together with all necessary information, to three arbitrators selected as follows: One by the tenant, one by the landlord, and one by the two thus selected. The arbitrators shall consider all pertinent facts and inform the parties of their decision on the amount of compensation due and payable by the landlord, or on any other question relative to improvements and specifically referred to them for an opinion."

Such a provision can be used entirely apart from the lease and as a separate contract. When so used, the parties can be more specific because the agreement will probably be made in view of contemplated improvements.

Producers' associations or other interested agencies might set up landlord-tenant commissions in local areas to act as arbitrators, and to aid landlords and tenants to get together on plans for making improvements, and to give assistance in procuring credit and with other problems. A commission of three or five members composed of an equal number of landlords and tenants and one disinterested party not a farm landlord or tenant should be adequate.

H. C. M. CASE and H. W. HANNAH

TENANCY NOT FULLY WEDDED TO LAND VALUES

The rule in Illinois farming that "where land values are high, much is rented; where low, little," has had its ups and downs. Because it might seem to imply that renting is regularly an aid to land values, analyses have been made to obtain a more accurate statement of the relation between land values and tenancy in Illinois and in some other parts of the country. The result is emphasis on four points in explaining why tenancy and realty values have gone together, sometimes less, sometimes more.

1. Farm properties, partly because of size and partly because of high value per acre, often represent aggregate investments too large for most tenants to become buyers from their accumulated earnings.

2. Equipment for farming and expenses for farm operations require so much working capital, or so much input of labor as to take all the resources that many tenant families can muster.

3. Tenancy has increased on farms foreclosed in satisfaction of debt and not yet resold to operating owners. On such farms, acre values of land and improvements, because of depreciation, are below those usual for the same soil type. This situation tends to reduce correspondence between high acre values and high tenancy.

4. Continuous renting of a farm, more or less regardless of soil type, may cause its more recent operators to report the value of its land and buildings to census takers and others below the values reported for owner operated farms on similar soil types. This, too, tends to reduce correlation between acre values and tenancy.

These facts are believed to explain some situations known to exist in Illinois and some other states of the Mississippi Valley:

1. Up to 1920 *high value of realty per acre* was increasingly associated with a high proportion of tenancy. In the 1930's, however, high value of realty per acre has been less associated with high percentages of tenancy in Illinois and several other states of the north central division.

2. *High values of realty per farm* have become more closely associated with high tenancy in Illinois and other north central states.

3. *High value of products per farm* has been in close correlation with high tenancy in Illinois for at least the past 60 years.

4. *Large acreage per farm* has been in closer correlation with high tenancy in Illinois than in most other states because our large farms also have high values per acre. In states where large-scale farming is found in areas of low rainfall as in western counties of states from North Dakota to Texas, high tenancy is associated with smaller acreage per farm. In some southern states cotton and other crops that have high labor requirements are produced on small farms often on a tenant basis. Thus there is close connection between tenancy and the higher values per acre of realty and products. Where cotton production reaches into Illinois and Missouri, there are local manifestations of the same tendency.

The relation between farm tenancy and the farm realty value characteristic referred to is close when viewed in a broad way for agricultural regions or farming-type areas where important differences are found in soil, rainfall, and other conditions. It does not follow, however, that the relationships between tenancy and realty values hold with equal clearness among townships in a county or in local communities falling entirely within the same farming-type area. Among local communities having sufficient similarity of soil-type, rainfall, etc. to make farm sizes, values of land, and products per acre and per farm more or less alike, efforts to measure differences in tenancy as an expression of difference in values of land and products or vice versa lead to different results.

Types of farming differ usually with differences in soil-type, rainfall, an

other physical and economic conditions. If tenancy and values of realty and products are compared for a state or other area having two or more quite different farming types, the highs in tenancy usually are found where the highs in values are located. Within each of these farming-type areas, however, townships or communities that differ in values and other characteristics do not necessarily carry corresponding differences in tenancy. The correlation of tenancy with values, which is strongly positive for the state as a whole, is neither strongly positive, nor strongly negative when the view is confined to more local areas in the same farming-type area.

Local variations in tenancy in disregard of values, and local variations in values in disregard of tenancy are understandable in the light of several tendencies believed to have long prevailed. In some localities the custom has been for only a few of the landowners to retire and in other localities for many to do so. Where settlement of a township was made by farmers not differing widely in age, replacement by tenants may have been at an earlier date than in another; and the effects on the real estate for good or bad may have become more pronounced in the one than in the other. Other developments affect the position of farm owners in a more or less fortuitous manner. The closing of banks, the development of oil and gas resources, and other local influences may affect very differently two townships where land values, tenancy, etc., might otherwise have been expected to be the same. Because of greater tendency in some townships to hazard mortgage indebtedness, the incidence of hard times may break into the tenure situation with more changing of land titles, and with more depreciation of property in one township than in another.

For tenancy to be not closely related to land values in local communities while they are closely related in large areas and agricultural regions is consistent with facts of observation. The drastic changes since 1920 have probably expressed themselves in changed local conditions more than in the remaking of agricultural regions.

Relations between tenancy and land values that hold in the relatively unchanged geography of the nation's agriculture show up quite differently in localities where economic change has struck individual farms and farmers with marked difference in effect.

C. L. STEWART

¹⁻¹²The first source is for annual data; the second is for current data from which tables may be brought to date.

²Survey of Current Business, 1936 supplement, U.S. Dept. of Commerce; subsequent monthly issues. Same as footnote 1. ³Illinois Crop and Livestock Statistics, Circular 438 (1937); monthly mimeographs of Statistical Tables for Illinois Crop Report, converted from 1910-14 = 100 to 1924-29 = 100 by multiplying by .7151. ⁴Agricultural Situation, Bureau of Agricultural Economics, U.S.D.A.; Agricultural Situation, converted from 1910-14 = 100 to 1924-29 = 100 by multiplying by .6486. ⁵Calculated from data furnished by Bureau of Agricultural Economics; Survey of Current Business, seasonally adjusted. ⁶Calculated by Department of Agricultural Economics, University of Illinois, seasonally adjusted. Data from Farm Income, Bureau of Agricultural Economics; B.A.E. monthly mimeograph. Receipts from Sale of Principal Farm products (government payments not included). ⁷Obtained by dividing Index of Illinois Farm Income (column 6) by Index of Prices Paid by Farmers (column 4). ⁸Monthly Indexes of Non-Agricultural and National Income, Supplement, August, 1937, B.A.E.; Price and Demand Situation, or Agricultural Situation. ⁹Survey of Current Business, 1938 Revision; subsequent monthly issues, unadjusted for seasonal variation. ¹⁰Federal Reserve Bulletin of Federal Reserve Board, September, 1933 and subsequent issues; Survey of Current Business, seasonally adjusted. ¹¹Preliminary estimate. ¹²Illinois Crop and Livestock Statistics, Cir. 438; Monthly price releases, State Agricultural Statistician.

TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural income ¹	Factory payrolls ¹	Industrial production ¹
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. In money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period.....	1926	1926	1924-29	1924-29	1924-29	1924-29	1924-29	1924-29	1923-25	1923-25
1929.....	95	105	104	99	103	103	104	107	110	119
1930.....	86	88	89	94	83	87	93	100	89	96
1931.....	73	65	62	80	58	58	72	86	68	81
1932.....	65	48	41	69	43	43	62	68	47	64
1933.....	66	51	45	71	49	51	72	63	50	76
1934.....	75	65	61	80	57	55	69	72	64	79
1935.....	80	79	82	81	64	65	80	77	74	90
1936.....	81	81	86	80	75	82	102	87	86	105
1937.....	86	86	96	84	81	86	102	96	102	110
1938.....	79	69	69	80	70	81	101	89	78	86
July.....	79	69	74	80	83	80	101	88	71	83
Aug.....	78	67	66	79	72	77	97	89	77	88
Sept.....	78	68	69	78	73	73	94	90	81	90
Oct.....	78	67	64	78	68	73	94	90	84	96
Nov.....	78	68	66	78	70	90	116	92	84	103
Dec.....	77	68	66	78	68	80	103	95	87	104
1939 Jan.....	77	67	66	78	68	99	127	92	83	101
Feb.....	77	67	66	78	60	82	105	92	85	98
Mar.....	77	66	66	78	64	103	132	92	87	98
Apr.....	76	64	64	78	64	75	96	90	85	92
May.....	76	64	65	78	65	82	105	91	84	92 ¹¹
June.....	76 ¹¹	65 ¹¹	70	78	.....	.....	.....	.....	.....	.....

TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS¹²

Product	Calendar year average			Current months			
	1924-29	1937	1938	Mar.	April	May	June
Corn, bu.....	\$.81	\$.94	\$.45	\$.40	\$.40	\$.44	\$.44
Oats, bu.....	.42	.39	.24	.26	.26	.29	.29
Wheat, bu.....	1.30	1.10	.68	.61	.61	.68	.66
Barley, bu.....	.66	.84	.53	.42	.41	.41	.41
Soybeans, bu.....	1.94	1.20	.75	.70	.75	.85	.80
Hogs, cwt.....	9.97	10.11	8.06	7.40	6.80	6.60	6.10
Beef cattle, cwt.....	8.57	8.93	7.68	8.20	8.60	8.50	7.90
Lambs, cwt.....	12.22	9.58	7.76	8.00	8.60	8.70	8.10
Milk cows, head.....	78.00	61.00	60.00	67.00	63.00	63.00	64.00
Veal calves, cwt.....	11.27	9.43	8.89	9.80	9.20	8.80	8.40
Sheep, cwt.....	6.52	4.09	3.36	3.90	4.00	3.60	3.40
Butterfat, lb.....	.42	.32	.25	.22	.20	.20	.21
Milk, cwt.....	2.32	1.92	1.66	1.50	1.45	1.40	1.40
Eggs, doz.....	.30	.20	.19	.14	.14	.13	.12
Chickens, lb.....	.21	.16	.15	.14	.14	.14	.13
Wool, lb.....	.36	.32	.21	.21	.21	.22	.24
Apples, bu.....	1.59	1.18	.95	1.40	1.40	1.45	1.35
Hay, ton.....	13.38	12.41	7.65	6.30	6.30	6.20	5.70
Potatoes, bu.....	1.39	1.12	.73	.80	.80	.85	.90

¹⁻¹¹For sources of data in tables see previous page.

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ILLINOIS FARM ECONOMICS

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Number 51

FACTORS IN THE PRESENT OUTLOOK

Demand Is Currently Improving. Business conditions in the United States have improved since May. In July, the Federal Reserve Board's index of production stood at 102 per cent of 1923-25. The volume of new construction is running ahead of last year; the government is paying out large sums which increase consumer income; and the automobile industry is getting into the production of 1940 models. During the last two years, business activity contracted sharply from the late summer of 1937 to May 1938, improved from May to December 1938, declined during the first five months of 1939, and then began the current recovery. It appears likely that business will continue to improve for several months. If this view proves to be correct, it will help the market outlook particularly for meat animals and dairy products.

Although the trend is upward, certain basic unsettling factors exist which make full recovery difficult. First, the uncertainty created by war scares in Europe which have been particularly frequent in recent months. Second, the low level of basic commodity prices, including those of agricultural staples. Third, the slow rate of investment of private capital which makes necessary huge government spending programs in order to maintain a certain level of activity. The latter situation is not confined to this country as government spending is worldwide, particularly in connection with preparations for war.

Since the peak of the last recovery period in early 1937, the trend in prices of staple commodities has been downward. In gold, the averages are now lower than in many years. This is unfavorable to general recovery because it reduces the ability of farmers and other producers of raw materials to buy and causes inventory losses which depress many types of business. A reverse in this downward trend at an early date does not appear likely. Because of the fact that prices are now measured in cheaper dollars, a decline of the prices of staple farm products to the early 1933 level is extremely unlikely.

Feed Supply Large. Basic to the livestock situation is the feed supply. The United States Department of Agriculture estimates that there will be .81 tons of feed grain available from crop and carryover for each grain consuming animal unit, compared with .88 tons last year and .78 tons in the pre-drouth period, 1928-32. This indicates about 8 per cent less than the very large supply of last year but about 4 per cent more than in 1928-32.

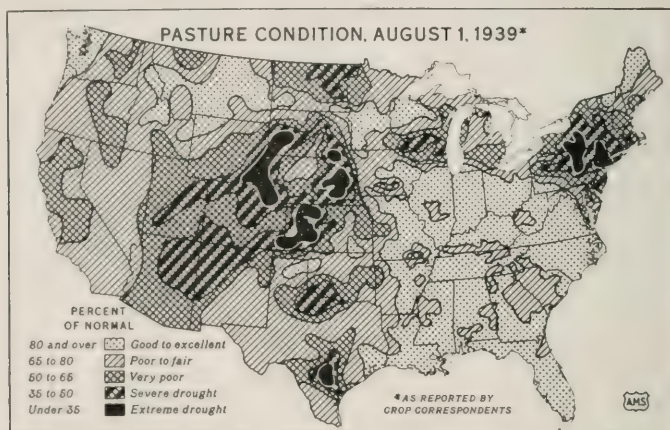
This suggests that there will be adequate feed for any feeding operations likely to be carried out, but the situation is complicated by the "ever normal" granary program. About 257 million bushels of corn are currently under seal and AAA officials have announced that none of this will be put on the market unless prices are higher. More farmers are eligible for corn loans this year than in 1938-39 and since the loan will apparently be substantially above the market price, it may be anticipated that more will be sealed. Should 300 million bushels of 1939 corn be sealed, then about 15.5 million tons of corn out of the 110 million tons of feed grains will be tied up until prices rise. This would reduce the supply of feed grains available for feeding to about .70 tons per animal or less than the pre-drouth supply. The effect of this will probably be to cause the supply of unsealed corn to be used up in some communities before the end of

the season and cause the local price of corn to rise to a point where it will be trucked into the community. This will happen sooner in areas where feeding is heavy than in grain marketing areas. Feeders should give consideration to this situation in planning their feeding and grain purchasing operations.

The supply of protein supplements will apparently be adequate. A record crop of soybeans is in sight. The supply of cottonseed meal will be smaller because of a smaller carryover and a slightly smaller crop of cotton. Supplies of tankage will be increased by more livestock slaughter. Currently "new crop" soybean meal is quoted in carlots at the mills at less than a cent a pound.

The August 1 estimate of the corn crop is about 80 million bushels less than the 1938 crop because of poorer yields in Nebraska and adjoining states. The carryover of corn will apparently be around 500 million bushels, the largest on record. The supply of oats is smaller than last year by the equivalent of about 100 million bushels of corn. Supplies of barley and grain sorghums are about as in 1938.

The pasture situation on August 1 is shown in the map.



Beef Cattle. Two factors are of dominant importance in the cattle outlook for 1939-40: (1) The abundance of feed—unless sealed and placed in the corn loan—will stimulate feeding and lead to large supplies of finished cattle at certain seasons. Currently, it is reported that 16 per cent more cattle were on feed in the corn belt states on August 1 than a year earlier. (2) The continued tendency to withhold cattle for restocking farms and ranches tends to hold down total market receipts and makes feeding cattle and less finished slaughter cattle higher in price. These two forces will keep the price of feeders relatively high and the margin between the price of fat and feeder cattle narrow. Profits will depend, more than ever, on careful attention to buying, fitting operations to the probable seasonal changes, and careful feeding and management.

Total market receipts of cattle have been declining since 1934, but the number on farms and ranches has been increasing for two years. Based on past experience when cattle numbers on farms have increased, such expansion tends to be at an increasing rate for about four years and the peak in stock cattle values comes at the time of most rapid increase in numbers. Based on this, the general level of cattle values may remain high or increase for at least another year. This has applied in the past to dairy as well as beef cattle.

This situation may be modified somewhat this year by the drouth in some

cattle producing areas. The United States Department of Agriculture says, "Even though there have been drouths in some range areas, no heavy liquidation is indicated, although many will sell closer than was expected a few months ago."

Hogs. The 1939 pig crop will be back around 80 million head, or the pre-drouth level. The hog situation is in process of the typical adjustment to large feed supplies and favorable feeding ratios. Market supplies are increasing and prices are declining. Because of the importance of storage operations in disposing of hog products, there is a strong tendency to discount coming events in hog markets and so a large part of the price readjustment may have occurred already. Probably there will be little seasonal strength in late summer and the usual seasonal declines in the late fall and early winter are to be expected. Prices of heavy hogs are likely to be discounted considerably in view of the abundance of edible fats and fat meat.

Lard has to face special difficulties. First, it was relatively scarce from 1935 to 1937 and was replaced in part by compounds made of vegetable oils. It must be cheap to regain this market. Second, although exports are increasing, the very important German market appears to have been lost for the present.

Hog numbers will likely continue high for at least another year. The level that has been reached, the lower prices, and the tying-up of corn in the "ever normal" granary program—as discussed in the feed grain section—may check the rate of expansion.

Lambs. The lamb crop is estimated to be about as large as last year although the United States Department of Agriculture reports that the supply of late lambs available for feeding will be larger than last fall. Prospects for lamb feeding are always uncertain this early in the season, but lower prices for other meat animals and only moderately good business conditions do not create too favorable an outlook for lamb prices.

Wheat. The price of wheat is high in the United States in relation to world levels. To get wheat exported, it is reported that the government is paying a subsidy of around 35 cents a bushel. Our higher price level reflects primarily the effect of this export subsidy, which pushes our price up above the world level. The subsidy plan has been in operation for a year and was responsible for a larger part of the 116 million bushels exported in the past year. It is to be continued this year. Other factors in the situation are the huge world supply, the depressing effects on prices in open world markets of export subsidies paid by this and the other principal export countries, and government loans to producers here which tend to withhold wheat from the market.

The total supply of wheat in this country is now estimated at 986 million bushels compared with 1,084 million a year earlier. Based on last year's consumption, there will be about 270 million bushels available for export and carry-over on July 1, 1940. There will be a smaller carryover than on July 1, 1939 if exports continue in fair volume. This may cause prices to strengthen here and work up toward the loan value, but the large world supply and low world price will tend to retard the advance in price.

Soybeans. The August 1 estimate showed an 18 per cent increase in the acreage of soybeans over 1938 and a slightly better condition. This indicates another record crop. On the demand side, the cotton crop is now reported to be slightly smaller than in 1938. Soybeans will therefore face less competition from cottonseed products. Exports of soybeans will probably be larger than ever before judged by reports concerning forward sales. New processing plants have been built. On the other side, cheap lard lowers the price of soybean oil and cheap corn the price of soybean meal. Current bids on new beans are about in line with the "new crop" prices of meal and oil.

L. J. NORTON

TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural income ⁸	Factory payrolls ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. In money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period	1926	1926	1924-29	1924-29	1924-29	1924-29	1924-29	1924-29	1923-25	1923-25
1929	95	105	104	99	103	103	104	108	110	119
1930	86	88	89	94	83	87	93	101	89	96
1931	73	65	62	80	58	58	72	86	68	81
1932	65	48	41	69	43	43	62	68	47	64
1933	66	51	45	71	49	51	72	64	50	76
1934	75	65	61	80	57	55	69	73	64	79
1935	80	79	82	81	64	65	80	78	74	90
1936	81	81	86	80	75	82	102	88	86	105
1937	86	86	96	84	81	86	102	96	102	110
1938	79	69	69	80	70	81	101	90	78	86
Aug.	78	67	66	79	72	77	97	89	77	88
Sept.	78	68	69	78	73	73	94	90	81	90
Oct.	78	67	64	78	68	73	94	90	84	96
Nov.	78	68	66	78	70	90	116	92	84	103
Dec.	77	68	66	78	68	80	103	95	87	104
1939 Jan.	77	67	66	78	68	99	127	92	83	101
Feb.	77	67	66	78	60	82	105	92	85	98
Mar.	77	66	66	78	64	103	132	92	87	98
Apr.	76	64	64	78	64	75	96	90	85	92
May	76	64	65	78	65	82	105	91	84	92
June	76	62	62	78	60	92	93	93	86	97 ¹¹
July	75 ¹¹	63 ¹¹	61	78						

TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS¹²

Product	Calendar year average			Current months			
	1924-29	1937	1938	April	May	June	July
Corn, bu.	\$.81	\$.94	\$.45	\$.40	\$.44	\$.44	\$.41
Oats, bu.	.42	.39	.24	.26	.29	.29	.24
Wheat, bu.	1.30	1.10	.68	.61	.68	.66	.58
Barley, bu.	.66	.84	.53	.41	.41	.41	.37
Soybeans, bu.	1.94	1.20	.75	.75	.85	.80	.70
Hogs, cwt.	9.97	10.11	8.06	6.80	6.60	6.10	6.40
Beef cattle, cwt.	8.57	8.93	7.68	8.60	8.50	7.90	7.80
Lambs, cwt.	12.22	9.58	7.76	8.60	8.70	8.10	8.00
Milk cows, head.	78.00	61.00	60.00	63.00	63.00	64.00	63.00
Veal calves, cwt.	11.27	9.43	8.89	9.20	8.80	8.40	8.60
Sheep, cwt.	6.52	4.09	3.36	4.00	3.60	3.40	3.10
Butterfat, lb.	.42	.32	.25	.20	.20	.21	.20
Milk, cwt.	2.32	1.92	1.66	1.45	1.40	1.40	1.40
Eggs, doz.	.30	.20	.19	.14	.13	.12	.13
Chickens, lb.	.21	.16	.15	.14	.14	.13	.14
Wool, lb.	.36	.32	.21	.21	.22	.24	.24
Apples, bu.	1.59	1.18	.95	1.40	1.45	1.35	.75
Hay, ton	13.38	12.41	7.65	6.30	6.20	5.70	5.70
Potatoes, bu.	1.39	1.12	.73	.80	.85	.90	.80

¹²For sources of data in tables see June and July issue.

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G. L. Jordan, Editor

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WAR-TIME PRICES

What will the war do to prices? When will there be inflation? These are questions which are uppermost in the minds of many farmers who are faced with the need for making decisions as to how they should market their crops during the coming year. Almost everyone associates high prices with a widespread war, and many people are evidently expecting a rapid and extreme rise in the prices of almost all products.

There was, however, no sustained rise in the general level of commodity prices immediately following the beginning of the World War in August 1914. Except for a sharp rise in August and a subsequent decline in the two following months, the average level of commodity prices remained about the same for over a year. This is indicated by Figure 1, which shows the course of wholesale prices of farm products and of industrial products monthly during the period 1913 to 1920. The dotted line shows the Bureau of Labor Statistics index of "All Commodities Other Than Farm Products and Foods," which is termed for brevity "Industrial Products" in the chart. The solid line shows the same bureau's index of wholesale prices of farm products.

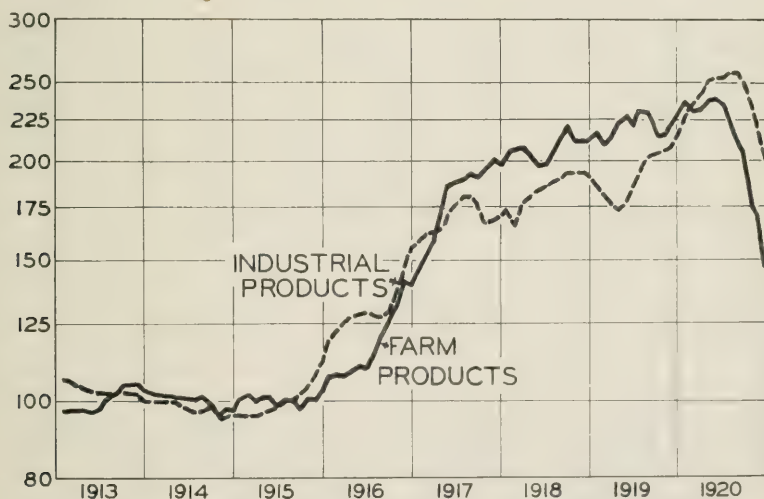


FIG. 1. INDEXES OF WHOLESALE COMMODITY PRICES, 1913 - 1920. (1910-14=100)

It will be noted that during most of the first year following the outbreak of hostilities, prices of both farm products and industrial products sagged slightly and it was not until the last quarter of 1915 that a steady rise of prices got under way. Prices then continued upward and did not reach their highest levels until approximately six years after the outbreak of the war and nearly two years after the Armistice.

It is not to be expected that prices during the current war will follow just the

bank price as the standard during the World War. Many of the circumstances are very different for individual commodities, and the financial situation of the various belligerent countries is also different. The course of prices in the United States will depend in part upon these things, in part upon the duration of the war, and in part upon the manner in which the United States maintains neutrality or becomes involved in the hostilities. It is, nevertheless, worthwhile to study price movements during the World War period carefully in order to have a basis for intelligent decision as to the most probable course of prices from time to time during the coming years.

Prices of many commodities rose abruptly immediately following the outbreak of the war in Poland on September 1 of this year. A similar rise occurred during August of 1914. In both cases, the rise was confined almost entirely to the sensitive-priced commodities, and to a large degree it was in the prices of commodities dealt with in speculative markets. In the index numbers of wholesale prices, the rise has occurred primarily in the "Farm Products" and in the "Foods" groups. No weekly index of farm product prices is available for 1914, but Figure 2 shows a comparison of two weekly indexes of the wholesale prices of foods in 1914 and 1939. Both indexes have been compiled by the New York Times "Annalist," and while different methods and commodities have been used in constructing the two indexes, they nevertheless provide a reasonably satisfactory comparison of the weekly course of the wholesale price of foods in the two years. The chart shows how, after rising rapidly during August of 1914, prices began to decline in September and continued downward in October.

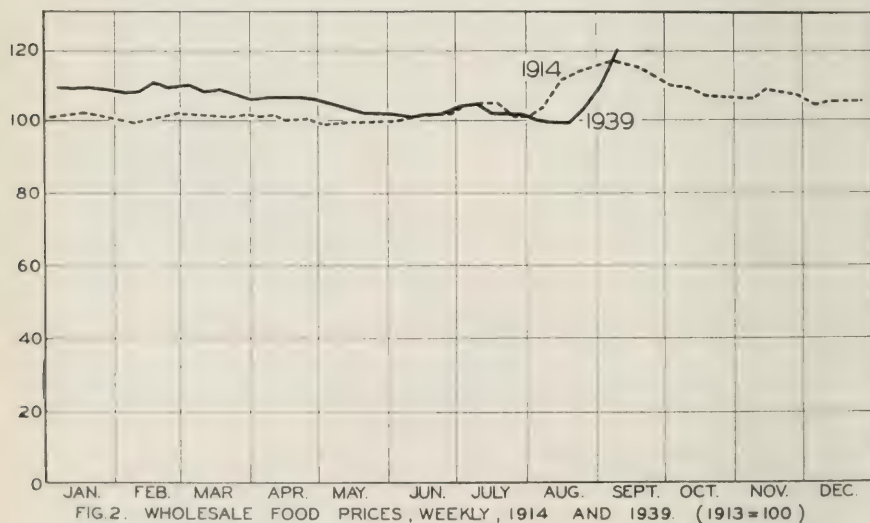


FIG. 2. WHOLESALE FOOD PRICES, WEEKLY, 1914 AND 1939 (1913=100)

The movement of prices in 1914 and 1915 was very different for different commodities. Among the farm products, wheat was the outstanding one to have its price increased. Six months after the outbreak of the World War, prices had increased by about 50 percent. Cotton prices, however, moved in the opposite direction. Lack of European buying, together with the harvesting in 1914 of the largest cotton crop then on record, demoralized the cotton market and resulted in cotton prices declining within six months to about one-half the level they had been in June.

Most other farm products were much less affected during the first two years

of the World War. Although other grains moved somewhat in sympathy with wheat, they did not rise nearly as much. Livestock prices rose but little until after 1915. Wool prices, while not showing nearly so much an advance as wheat during the early part of the war, nevertheless advanced materially. The price of sugar also rose rapidly during the latter part of 1914 and 1915 as the result of western European countries turning to Cuba for supplies of that product when the supply from continental Europe was cut off.

It is evident that in 1914 speculative factors caused the price rise to be overdone. Speculative markets are subject to erratic movements as a result of changes in the opinions of traders, and inasmuch as price increases are likely to make traders optimistic, any unusual rise is likely to be carried too far. In any event, although speculative markets can move up and down very rapidly as a result of the changing opinions of speculators, they cannot stay up or down over a long period of time unless the fundamental supply and demand conditions justify such a change. A rise in the price of a commodity can be sustained over a considerable period of time only as a result of a reduction in the supply or of an increase in the ability or willingness of consumers to buy. In 1914, that part of the rise in food prices which was sustained was apparently due in considerable degree to conditions quite apart from the war. The rise in food prices was primarily in wheat, flour, and sugar prices. There was also a smaller rise in the prices of meats and meat animals. The rise in sugar prices was probably due almost entirely to the fact that the war cut off the rest of the world from one of their principal sources of sugar—central Europe—and that it interfered with the shipment of sugar from far-off Java. Although there may have been some increase in the demand for wheat as a result of the war-time conditions, it is nevertheless significant that the world crop of 1914 was smaller than that of either 1912 or 1913. The rise in meat prices may also be attributed to small supplies, for the inspected slaughter of cattle in 1914 was the smallest since 1904, hog slaughter was unusually small, and the slaughter of sheep and lambs was smaller than in 1913, which in turn had been smaller than that of the preceding year. It consequently would appear that the war itself had little more than a temporary effect upon food prices during 1914 and 1915.

Since the beginning of the present war, there has been little change in the supply prospects for most agricultural products, and there is thus far little indication of a fundamental increase in consumer purchasing power or in the demand for agricultural products as a whole. Although there is some prospect that the rest of the world may be cut off from the sugar supplies of central Europe, these supplies are now of less importance in the world sugar trade than they were in 1914, and there appears to be more than ample capacity in the cane sugar producing countries to supply any deficiency in the supply from central Europe. The course of prices of a number of important Illinois farm products are discussed in more detail in separate sections below. However, any marked and sustained advance in the average farm product prices in the United States must wait upon increased production of non-agricultural goods or upon the adoption of measures which are of an inflationary character in the United States.

The sagging of the average level of prices of both agricultural and industrial products during 1914 and early 1915 was in a large measure the direct result of a minor business depression which occurred at that time. Whether we have a similar development during the coming year will depend in a large measure upon what happens to business activity. Figure 3 shows, in its upper section, the course of wholesale prices of farm products compared with industrial production in the years 1913 to 1916. In the lower section, the corresponding data are shown for 1938 and the first eight months of 1939. It will be noted that in the earlier period, prices of farm products lagged somewhat behind industrial production,

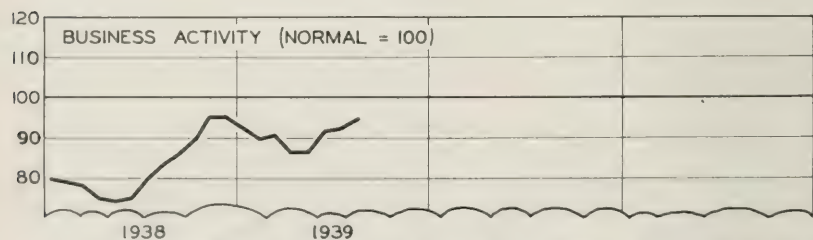
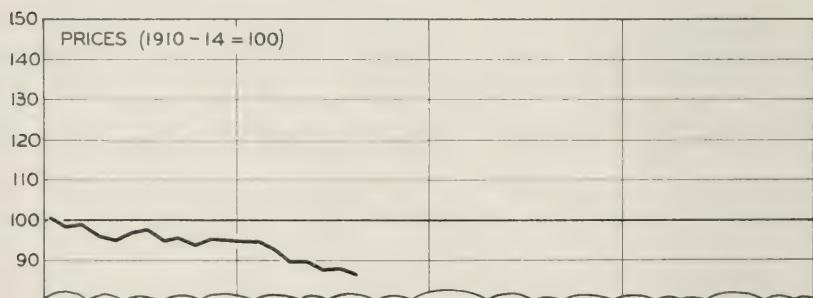
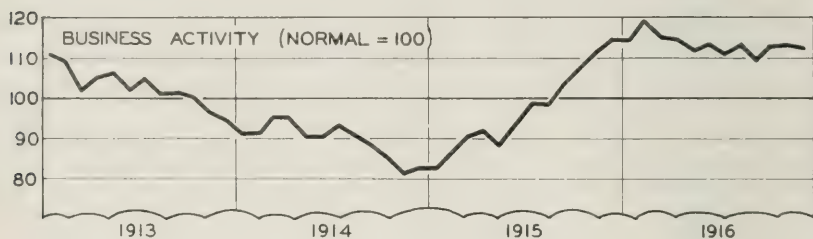
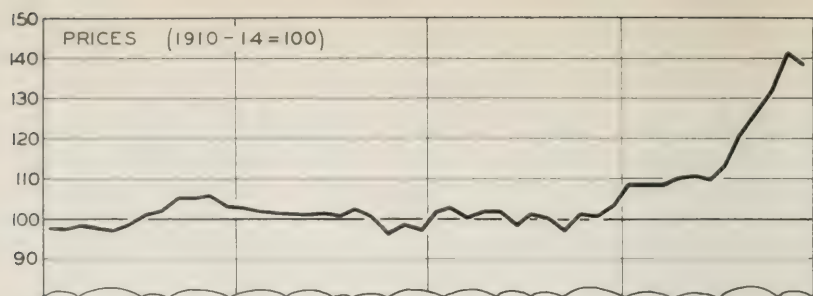


FIG. 3. WHOLESALE PRICES OF FARM PRODUCTS AND BUSINESS ACTIVITY 1913 TO 1916 AND 1938 TO DATE.

declining later and rising later than business activity. This lag is typical of the relationship between business activity and farm product prices in the post-war period also, and it is likely that during the next year and a half the level of farm product prices will be very largely influenced by the course of business activity in the United States.

At the present time, reports indicate that the initial effect of the opening of hostilities has been to increase orders for many industrial products and it will consequently tend to bring on at least a temporary increase of industrial output.

The extent to which such an increase will be sustained will depend upon a number of factors.

The current war has begun when the United States has a background of a long period of depression and of a short period of recovery immediately preceding. When war started a quarter of a century ago, on the other hand, though the United States had a background of prosperity during 1912 and early 1913, a recession in business activity was well under way and the financial markets were further disorganized by the war. The current situation provides a much better opportunity for the changes in war-time demands to improve rather than worsen business conditions in the United States. The financial situation is now strong and, furthermore, there is good prospect for advancing business activity in the coming months even without any stimulus of war-time demands.

One of the most important differences in the present situation from that of 25 years ago is the fact that in recent years business recovery has been greatly hampered by very low prices of agricultural, as compared with industrial products, and by an abnormally high level of wage rates relative to commodity prices. A quarter of a century ago the situation was almost the opposite. If the war-time conditions—including the demands of European nations and the limitations placed by our own government upon our supplying them—should result in an increased foreign demand for agricultural products, this could well give additional stimulus to industrial recovery because of the improvement in the demand of domestic agriculture for industrial products.

Under our present neutrality law, France and Germany will probably withdraw much man power from agricultural work because they will have to manufacture most of their own munitions. This will tend to increase their demand for agricultural products and other industrial raw materials from abroad. Any such increase in demand would be a fundamental factor tending to raise the prices of agricultural products in the United States. A change in our neutrality law permitting the export of war munitions would tend to favor the export of industrial manufactures and perhaps reduce somewhat the possible improvement in prices of agricultural products.

It is to be borne in mind, however, that the ability of France and England to finance imports is probably much less than it was in 1914 because of their smaller holdings of readily saleable international securities and gold. This will tend to limit the effect of their buying operations in either raising prices or increasing industrial production in the United States. No such price inflation as occurred in the period 1917 to 1920 seems possible unless the war should be prolonged and much of the financing of the war should be done in the United States—either by private parties or by our government.

All in all, it now appears most likely that if the war should continue for a year or more prices of farm products in the United States will, on the whole, strengthen somewhat in the next year instead of sagging as they did a quarter of a century ago. Some of the speculative commodities, however, have probably already reached higher levels than they are likely to maintain. Nevertheless, it must be borne in mind that movements during the coming year are much more subject to direct control by government agencies than was the case during the first year of the World War.

E. J. WORKING

PRICE MOVEMENTS OF SELECTED FARM PRODUCTS IN 1914 AND 1939

The outbreak of the current war has materially affected the course of prices of many agricultural products. Just what the future effect will be is, of course, highly uncertain, but it is instructive to compare the daily price changes which have occurred in important agricultural products thus far with those which

occurred immediately following the beginning of hostilities 25 years ago. There have been some striking similarities in the day-to-day price movements and also some important differences. As time passes, of course, the different backgrounds of the two situations are likely to become more and more apparent and the similarities less close. Nevertheless, a day-to-day comparison of price movements will be helpful to many farmers who must decide when to market their crops.

In 1914 England declared that a state of war existed with Germany one month, lacking one day, earlier than in 1939. This comparable timing of the beginning of the World War and the present conflict facilitates a comparison of the behavior of prices for the two periods. In observing the charts below, the August, 1914, data should be compared to the September, 1939, data, et cetera.

Wheat. It will be observed in Figure 4 that the cash price of No. 2 Red wheat on the Chicago market skyrocketed in August, 1914, the month England declared war. Prior to August, i. e. in June and July, the price of wheat had a sinking spell. The range in price for August was 30 cents. The price had risen from a low of \$.85 $\frac{1}{4}$ August 3, to \$.97 $\frac{3}{4}$ August 10, then receded to \$.90 $\frac{1}{4}$ August 15 and rose to \$1.16 August 27. (See Figure 5). The highest price in September, 1914, the second month of the war, was \$1.23 $\frac{1}{2}$. This occurred on September 5. The lowest price in September was \$1.03 $\frac{1}{4}$ and that occurred on the last day of the month. There was a slow but steady recovery from \$1.02 on October 2 to \$1.16 $\frac{1}{2}$ on October 23, followed by very minor fluctuations during the rest of the month. Wheat prices were steady in November, fluctuating between \$1.11 $\frac{1}{8}$ and \$1.16 $\frac{3}{4}$. Early in December prices began to climb and continued upward through the first week in February, 1915.

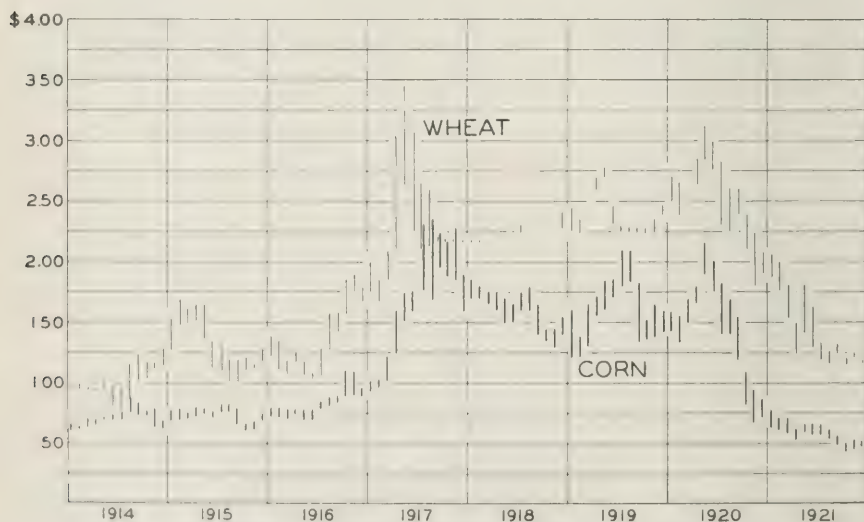


FIG 4 MONTHLY RANGE OF CASH PRICES OF NO. 2 RED WHEAT AND CONTRACT GRADE OF CORN AT CHICAGO, 1914-1921.

A new high price (\$1.08) was reached on February 5, 1915 and was not reached again for 20 months. The maximum price for No. 2 Red Wheat at Chicago (\$3.45) was reached May 11, 1917, upon the entrance of the United States into the war. The price then receded and was fixed by governmental regulation at \$2.17 for 9 months, then permitted to rise to \$2.23-\$2.25 until the war was over. There was another big bulge in prices to \$2.78 $\frac{1}{2}$ in May, 1919.

and another to \$3.15 in May, 1920. After that came the deluge which brought cash wheat prices back to \$1.00 in August, 1922.

There are some pertinent facts worth observing in comparing 1914 and 1939. World production of wheat in 1913 was 15 percent greater than the 1909-13 average. World production of wheat in 1938 was also very large relative to recent years. World production of wheat in 1914 and 1939 were both lower than the pre-war year, but about equal to the average for recent years. The 1,200,000,000 bushels of wheat on hand, July 1, 1939, was excessive compared to recent experience and, when combined with a normal crop this year, affords ample wheat for this year and will help prevent any serious shortage of supplies which might result from a short crop in 1940.

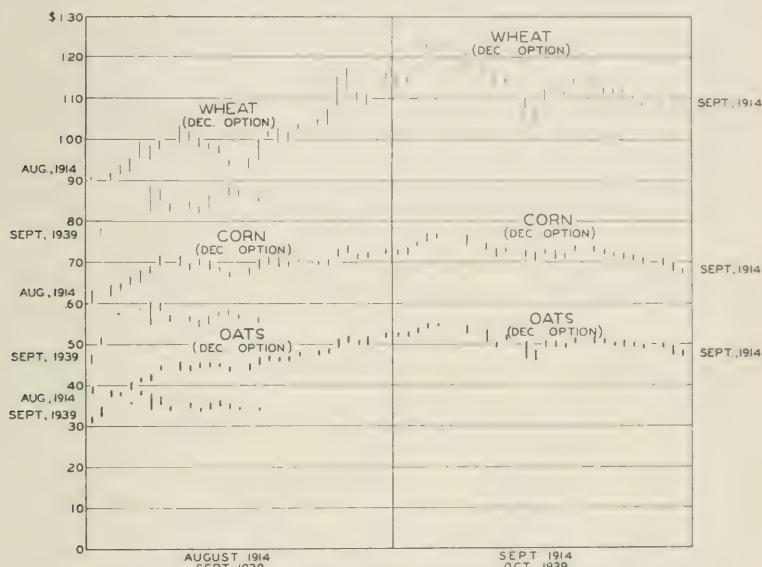


FIG. 5. DAILY RANGE OF DECEMBER FUTURES IN WHEAT, CORN, AND OATS, AUGUST AND SEPTEMBER, 1914, AND SEPTEMBER, 1939.

Corn. In August, 1914, the cash price of corn averaged about \$.08 a bushel higher than in July. August was the peak month. Thereafter, the price trend for cash corn was downward through December, 1914. (See Figures 4 and 5). There was a substantial recovery in January, 1915 that carried through August, 1915. The very large crop of 1915 doubtless had something to do with the collapse of prices in September and October, 1915, after which corn prices tended to increase to August, 1917. The top price in August, 1914, was not reached again for 2 years, i. e. until August, 1916. Production of corn in the United States in 1914 was just slightly under the 1909-13 average. The quantity of corn on farms March 1, 1914, was substantially less than the 1909-1913 average. There was no surplus problem at that time.

As with wheat, there was a minor reaction from the first week's bulge in corn prices in August, 1914, followed by minor fluctuations in cash prices and an upward tendency in the December futures into the first week of September. Thereafter a decline in corn prices lasted until January, 1915.

Oats. In general, the price of oats showed more strength during the first month of the World War than did the price of corn. Cash oats at Chicago rose from \$.33½ on August 3 to \$.42¼ on August 8, but unlike corn, there was only a very small decline and this was followed by a resumption of the upward trend

throughout the last half of the month. As with corn, however, the top price of cash oats ($\$51\frac{1}{8}$) was reached the first week of September and this was followed by a downward tendency throughout the rest of the month. The low point of this decline was reached October 1 at $\$44\frac{3}{4}$. Thereafter the price fluctuated between $\$.45$ and $\$.50$ through October, November, and December, 1914.

Hogs. The price of hogs advanced sharply during the first 10 days of August, 1914. The top price rose from $\$8.80$ a cwt. on August 4, to $\$10.20$ on August 10. (See Figure 6). The August 10 price was the high for the entire year. The top price dropped back to $\$9.40$ in two days and showed an irregular declining tendency the rest of the year. The high on August 31, 1914, was $\$9.55$; on September 30 it was $\$9.10$; on October 31, $\$7.65$; on November 30, $\$7.75$; and on December 31, it was $\$7.35$.

The top price of hogs at Chicago in 1915 was $\$9.00$. That occurred in October, 1915, but was $\$1.20$ under the price on August 4, 1914. From a low beginning the price rose substantially in the first few months of 1915 and continued to show strength throughout the year. In 1917, the price of hogs spurted upward again, reaching $\$20$ on August 21. This price was not reached again until August, 1918. Twenty-dollar hogs were the rule rather than the exception from April through August, 1919. The highest price for the entire period was $\$23.60$. This occurred on July 31, 1919 during the post-war boom.

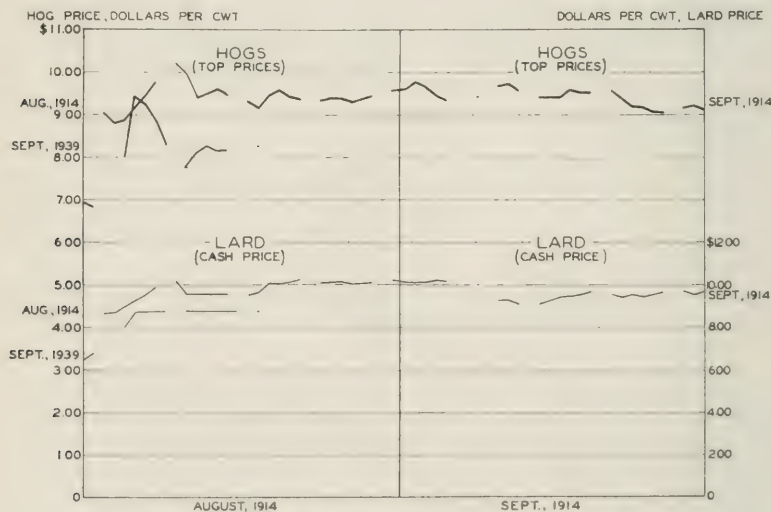


FIG. 6 DAILY TOP PRICES OF HOGS AND LARD AT CHICAGO, AUGUST AND SEPTEMBER, 1914, AND SEPTEMBER, 1939

Lard. The cash wholesale price of lard advanced sharply at Chicago to $\$10.10$ a cwt. on August 10, 1914, from $\$8.60$ on August 3. On August 11, the price was $\$9.33\frac{1}{2}$ and stayed steady for six days. On August 19, lard was again above $\$10.00$ a cwt. and remained above $\$10.00$ until September 8. (See Figure 6). The low for September was $\$9.10$ and the close, September 30, was $\$9.65$. The close October 30 was $\$10.75$; $\$10.05$ on November 30; and $\$10.50$ on December 31, 1914. The price of lard held stronger than the price of hogs during the first two months after war was declared in 1914.

The first $\$12.00$ lard, using Chicago wholesale cash prices, occurred in April, 1916. Prices then rose rapidly to $\$17.45$ in November, 1916, and to $\$28.20$ in

November, 1917. This was the highest cash quotation for the war period. The top prices fluctuated around \$25.00 to \$27.00 during 1918.

Exports of lard declined during the early months of the World War, but other pork products were exported in increasingly large quantities after 1915, particularly to France and Great Britain.

G. L. JORDAN

PROSPECTS FOR SOYBEAN PRICES

In mid-August, new crop soybean futures were averaging about 60 cents per bushel and on September 8, December futures closed at 89½ cents. The rise was the result, primarily at least, of the burst of speculative activity common to all speculative markets following the outbreak of the European war. Part of the price gains have already been lost, December futures closing at 81½ cents on September 18. Although some further recession is expected, it does not now seem likely that during the next few months prices will fall as low as the levels prevailing in mid-August.

There has been a general downward tendency in the price of soybeans since May, 1937. Both meal and oil prices have declined greatly in the past two years.

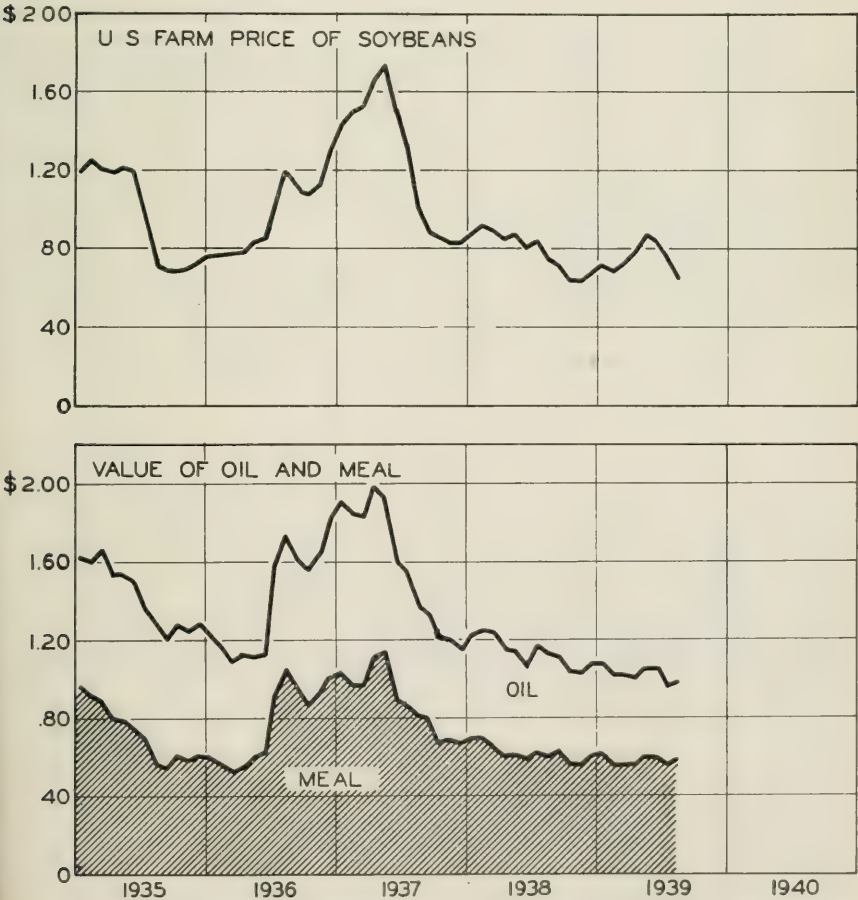


FIG. 7 SOYBEAN PRICES AND THE VALUE OF OIL AND MEAL IN ONE BUSHEL OF SOYBEANS

and the value of soybeans depends upon the value of these products and the margin taken by processors. Figure 7 shows the United States farm price of soybeans compared with the value of the oil and meal obtained from an average bushel of soybeans.

A record crop of soybeans will be harvested this year. The Crop Reporting Board has forecast a production of 71 million bushels in four states, and this indicates that the production for the entire country will be close to 80 million bushels, compared with the previous record established last year of approximately 60 million bushels. The increased production, however, will not greatly affect prices of soybeans during the coming year. There is apparently sufficient crushing capacity to handle the entire crop and the increase in the soybean supply will have relatively little effect on the total supply of edible fats and oils available in the United States. Cottonseed oil, lard, and butter make up the great bulk of the edible fat and oil supplies of the United States, and soybean oil prices will depend very largely upon the total supplies of edible fats and oils and upon conditions of demand. Similarly, since soybean meal is competitive with cottonseed and linseed oil meals, its price will depend largely upon the same factors that affect these oil meal prices.

Among the factors responsible for the decline of oil prices in the past two years are the increasing production of cottonseed oil, lard, and to a lesser extent, soybean oil. Increased production of vegetable oils in foreign countries in recent years has also been a factor, and during the latter part of 1937 and the early part of 1938 the declining level of business activity in the United States contributed to the fall in prices of these edible oils. In the calendar year 1938, the total production of all fats and oils in the United States exceeded that of every previous year, except 1929—a year in which there were very large increases in stocks and only small net imports. Indications are that both production and net imports during 1939 will be larger than in 1929.

Although the large production of the edible fats and oils has been a depressing factor and there may be some further increase in production during the coming

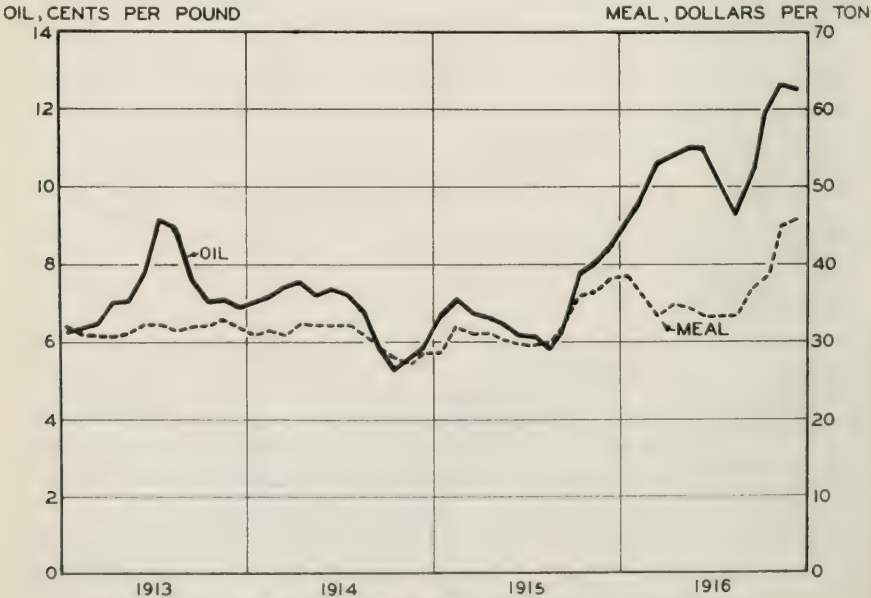


FIG 8. PRICES OF COTTONSEED OIL AND MEAL AT NEW YORK

year, it seems likely that soybean and cottonseed oil prices during the next few months will average above the levels which prevailed during August, when crude soybean oil at midwestern mills averaged only 4.2 cents and crude cottonseed oil at southeastern mills averaged 4.5 cents per pound. Business activity has improved materially in the past three months and present prospects are for a further advance. If this should occur, it will mean an improvement in the demand for the edible oils. Furthermore, the speculative activity brought on by the outbreak of the war in Europe has given an initial impetus to price improvement.

What the effect of the war will be on soybean prices is uncertain. We cannot obtain any direct evidence by noting the course of soybean prices during 1914 and 1915. Twenty-five years ago but few soybeans were grown in the United States and what beans were sold were for seed purposes. Judgment must consequently be based upon prices of products which are competitive with soybean products.

The course of prices of cottonseed oil and cottonseed meal during the early part of the World War is shown graphically by Figure 8. It will be noted that a considerable decline in the prices of both these products followed the beginning of the war. This decline, however, may be attributed partly to the bumper crop of cottonseed which was harvested in that year. This unusually large supply was in itself enough to cause a price decline, but there was also a reduction in demand due to the severe decline of business activity. These factors, together with the cutting off of the central European market for fats and oils, caused cottonseed oil and meal prices to fall in 1914. However, United States exports of both cottonseed oil and cottonseed cake and meal in 1914-15 were well up to the average of the pre-war years.

In recent years the United States has become a net importer of cottonseed oil, and exports of cottonseed meal are far smaller than they were during the pre-World War period. Consequently, the present European war will not so directly affect the demand for cottonseed products of the United States as the World War did in 1914. However, Germany has been a very important market for soybeans and other vegetable oil materials. War may well weaken the international market for these commodities. It is not to be expected that the current war will bring a material and sustained improvement in soybean prices unless it causes a sustained rise of commodity prices in general.

E. J. WORKING and G. L. JORDAN

Footnotes for the following page:

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TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural income ⁸	Factory payrolls ⁹	Industrial production ¹⁰
	All commodities ¹	Farm products ²	Illinois farm prices ³	Prices paid by farmers ⁴	U. S. In money ⁵	Illinois In money ⁶	In purchasing power ⁷			
Base period.....	1926	1926	1924-29	1924-29	1924-29	1924-29	1924-29	1924-29	1923-25	1923-25
1929.....	95	105	104	99	103	103	104	108	110	119
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1935.....	80	79	82	81	64	65	80	78	74	90
1936.....	81	81	86	80	75	82	102	88	86	105
1937.....	86	86	96	84	81	86	102	96	102	110
1938.....	79	69	69	80	70	81	101	90	78	86
Aug.....	78	67	66	79	72	77	97	89	77	88
Sept.....	78	68	69	78	73	73	94	90	81	90
Oct.....	78	67	64	78	68	73	94	90	84	96
Nov.....	78	68	66	78	70	90	116	92	84	103
Dec.....	77	68	66	78	68	80	103	95	87	104
1939 Jan.....	77	67	66	78	68	99	127	92	83	101
Feb.....	77	67	66	78	60	82	105	92	85	98
Mar.....	77	66	66	78	64	103	132	92	87	98
Apr.....	76	64	64	78	64	75	96	90	85	92
May.....	76	64	65	78	65	82	105	91	84	92
June.....	76	62	62	78	60	72	92	93	86	98
July.....	75	63	61	78	62	67	91	93	71	102 ¹¹
August.....	75	61 ¹¹	58 ¹¹	77	...	...	...	...	...	...

TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS¹²

Product	Calendar year average			August 1938	Current months		
	1924-29	1937	1938		June	July	August
Corn, bu.....	\$.81	\$.94	\$.45	\$.44	\$.44	\$.41	\$.38
Oats, bu.....	.42	.39	.24	.18	.29	.24	.24
Wheat, bu.....	1.30	1.10	.68	.54	.66	.58	.57
Barley, bu.....	.66	.84	.53	.40	.41	.37	.36
Soybeans, bu.....	1.94	1.20	.75	.70	.80	.70	.60
Hogs, cwt.....	9.97	10.11	8.06	8.00	6.10	6.40	5.50
Beef cattle, cwt.....	8.57	8.93	7.68	8.10	7.90	7.80	7.70
Lambs, cwt.....	12.22	9.58	7.76	7.50	8.10	8.00	7.60
Milk cows, head.....	78.00	61.00	60.00	60.00	64.00	63.00	60.00
Veal calves, cwt.....	11.27	9.43	8.89	8.70	8.40	8.60	8.70
Sheep, cwt.....	6.52	4.09	3.36	3.10	3.40	3.10	2.80
Butterfat, lb.....	.42	.32	.25	.23	.21	.20	.25
Milk, cwt.....	2.32	1.92	1.66	1.55	1.40	1.40	1.40
Eggs, doz.....	.30	.20	.19	.17	.12	.13	.13
Chickens, lb.....	.21	.16	.15	.14	.13	.14	.13
Wool, lb.....	.36	.32	.21	.20	.24	.24	.24
Apples, bu.....	1.59	1.18	.95	.90	1.35	.75	.65
Hay, ton.....	13.38	12.41	7.65	5.90	5.70	5.70	5.40
Potatoes, bu.....	1.39	1.12	.73	.55	.90	.80	.75

¹⁻¹²For sources of data in tables see previous page.

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 Director, Extension Service in Agriculture and Home Economics, University of Illinois

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ILLINOIS FARM ECONOMICS

Department of Agricultural Economics, College of Agriculture and Agricultural Experiment Station, in cooperation with the Extension Service in Agriculture and Home Economics, University of Illinois

G. L. Jordan, Editor

October, 1939

Number 53

THE CORN PRICE SITUATION

An analysis of this year's corn situation indicates that corn prices from now until May are likely to average somewhat higher than in the corresponding period of last year when No. 3 yellow at Chicago averaged 49 cents per bushel. There are, however, a number of uncertain factors which will be of prime importance in affecting both the average level and the course of prices during the next seven months. Developments concerning these factors need to be watched carefully in

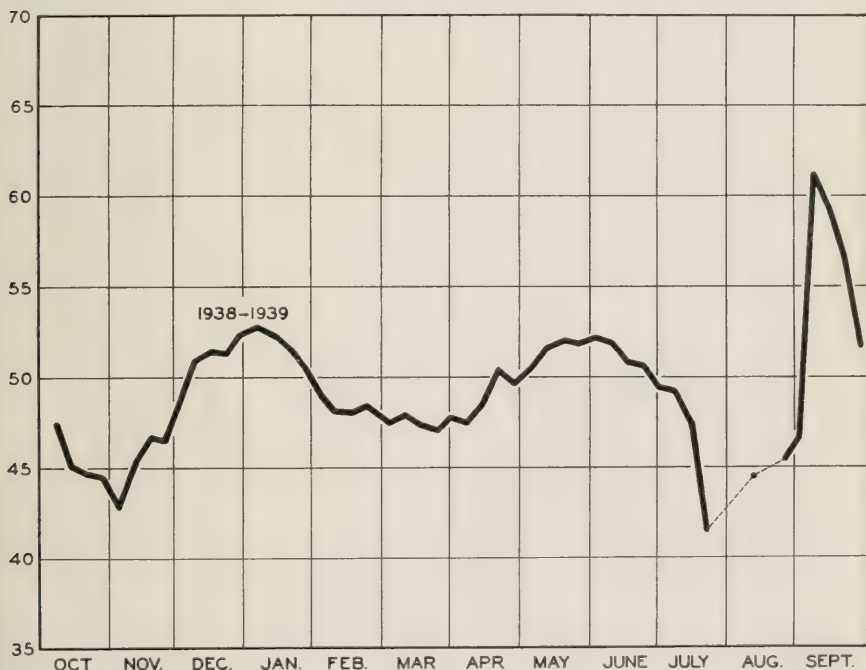


FIG. 1. CORN PRICES: NO. 3 YELLOW AT CHICAGO, WEEKLY

appraising price prospects. The movement of prices after May of 1940 will depend largely upon what are then the prospects for the 1940 crop and upon government measures designed to control the corn situation.

In the period November to May of the 1938-39 season, No. 3 yellow corn at Chicago averaged 49.1 cents per bushel. In the absence of government control, fundamental supply and demand conditions would indicate a slightly higher price during the corresponding months of 1939-40. Although the supply of corn for the current year (3,093 million bushels) is about six percent larger than last year, and the supply of all feed grains combined nearly four percent larger, supplies of

corn per animal unit are but little different from either 1937 or 1938 and total supplies of feed grains per animal unit are somewhat smaller than in either of those years. Business activity and hence general demand conditions promise to average better in 1939-40 than in 1938-39.

Figure 1 shows the weekly course of No. 3 yellow corn at Chicago during the 1938-39 crop year. It will be noted that the Chicago price was well below the loan rate of 57 cents throughout the entire year except during September when there was a "boom" of speculative commodity prices. The fact that market prices were well below the loan rate resulted from a fairly large proportion of the 1938 corn crop in important cash grain areas being ineligible for sealing. This year there is a much larger proportion of the corn eligible for loans. In consequence, it is likely that more corn will be sealed this year than last and that fewer farmers will market new corn at prices below the returns which can be had from government loans.

During August, it was announced that the government would keep off the market the entire amount of corn then under seal (257 million bushels) until it

PERCENT OF 12 MO. AVERAGE

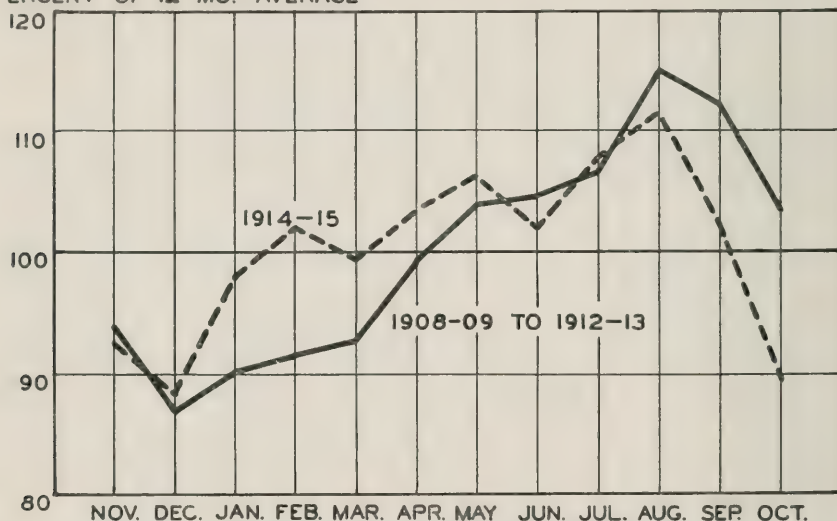


FIG. 2 SEASONAL VARIATION IN PRICES OF NO. 3 YELLOW CORN AT CHICAGO, 1908-09 TO 1912-13 AND 1914-15.

was needed by livestock producers or until prices advance sufficiently to justify the release. Since total stocks of old corn as of October 1 have been estimated at 561 million bushels, it would appear that there are over 300 million bushels of 1938 corn which were carried over and are not under government control.

Most of the 300 million bushel carryover not under government loan is probably in the hands of those who expect to feed it during the coming year and to replace it by new crop corn under government loan. If such is the case, there may be only very small quantities of corn available in market channels at less than the loan value. Altogether, it seems most likely that while Chicago prices may be below the loan prices during much of the 1939-40 season, they will at times rise to, or even somewhat above, the loan rate. Present indications are that the loan rate for 1939-40 may be about 61 cents per bushel.

Seasonal variation. Prospects for the movement of corn prices during the season are much less clear than prospects for the season average price. One of the uncertainties is the effect of the war.

The seasonal variations in the price of No. 3 yellow corn at Chicago for the pre-World War period and for the first full year of the World War are indicated in Fig. 2. The solid line indicates the typical seasonal variation and the dotted line the course of prices in the first war year. Although both lines rise substantially from December to the following August, a more rapid rise is shown in January and February, 1915, and a more rapid decline in September and October, 1915, than in the corresponding months of the pre-war period. The rapidly rising wheat prices in January and February, 1915, probably facilitated the rising corn prices in the same months. On the other hand, a bumper crop of corn was raised in 1915 and that doubtless contributed to the relatively large decline in September and October, 1915.

For the year 1914-15 as a whole the War probably had no significant influence upon the level of corn prices except as it affected business activity. The rapidly improving business conditions and increasing hog numbers exerted a sustaining influence on corn prices throughout the season. Without this support the bumper corn crop of 1915 would have depressed corn prices further in the latter part of the season.

In the absence of a loan program it seems likely that the increasing hog numbers and improving business activity would this season result in more than a normal seasonal rise in corn prices from December to May. (See Illinois Farm Economics, Nos. 30 and 31). This year's loan program, like that of 1938-39, is likely to modify materially the seasonal movement by maintaining early-season prices at higher levels than they would otherwise be. The higher early-season prices afforded by the loan program also tend to reduce feeding and increase carryover, and consequently limit the extent of the rise in the latter part of the season.

While it is not to be expected that the seasonal movement of prices in 1939-40 will duplicate that of last year, prices at some time during the early part of the season may rise about as high as at any time during the crop year. Those who have corn to sell and are eligible for loans would probably do well to seal their corn and sell it only in case market prices rise to a point where it can be sold for more than the loan. On the other hand those who must sell corn which is not eligible for a government loan should not count on a normal seasonal movement of prices.

E. J. WORKING and G. L. JORDAN

FACTORS AFFECTING THE APPLE SITUATION

Apple prices in September and October were extremely low. Prospects for the remainder of the 1939-40 apple marketing year are rather gloomy in view of large crops of apples and oranges and a likely decrease in exports because of the European war. Offsetting this is the improved domestic demand brought about by a moderate improvement in industrial activity.

Factors contributing to low apple prices this fall are: (1) Early maturity of fruit and consequent large supplies thrown on markets early in the season; (2) Prospects for a large commercial crop and unusually large crops of fall varieties; (3) Decline in exports and uncertain future of export business on account of the European war; (4) Lack of any speculative demand since storage deals have been consistently disappointing to handlers in recent years, and (5) Prospects for a large citrus crop.

An appraisal of the more important price determining factors, namely, supply

of apples and competing fruits, and domestic and foreign demand, are necessary to gain a clear picture of the present apple situation.

The United States Department of Agriculture, on the basis of September 1 condition, reports a 1939 commercial apple crop of 103 million bushels (Table 1). This is 25 percent more than the 1938 commercial crop of 82 million bushels and 7 percent more than the 10-year (1928-1937) average of 96 million bushels. The 1939 prospective crop in the western states is 10 percent less than the 1938 crop, but crops in the central states are 114 percent and in the eastern states 31 percent larger than a year ago. This year's crop is indicated to be larger than the 1928-1937 average in all regions except the western and south central.

TABLE 1.—APPLES: COMMERCIAL PRODUCTION BY REGIONS AND IN ILLINOIS
Average 1928-1937. Annual 1937-1938, and Indicated 1939*

Region	Average 1928-1937	1937	1938	Indicated 1939	1939 Increase or decrease over—	
					1938	10 yr. ave.
	<i>1,000 bu.</i>	<i>1,000 bu.</i>	<i>1,000 bu.</i>	<i>1,000 bu.</i>	<i>pct.</i>	<i>pct.</i>
North Atlantic ^b	24,119	29,787	21,091	29,510	40	22
South Atlantic ^c	15,416	21,180	14,264	16,780	18	9
Total Eastern.....	39,535	50,967	35,355	46,290	31	17
Illinois.....	3,203	5,900	1,900	4,700	147	47
North Central ^d	15,954	26,398	11,245	23,710	111	49
South Central ^e	1,634	2,533	475	1,340	182	-18
Total Central.....	17,588	28,931	11,720	25,050	114	42
Rocky Mountain ^f	6,581	5,702	5,284	4,620	-14	-42
Pacific Coast ^g	32,767	30,133	30,036	27,300	-9	-20
Total Western.....	39,348	35,835	35,320	31,920	-10	-19
Total UNITED STATES....	96,471	115,733	82,395	103,260	25	7

*Commercial is that part of the crop sold or to be sold for fresh consumption. ^bMaine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania. ^cDelaware, Maryland, Virginia, West Virginia, North Carolina, Georgia. ^dOhio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, Missouri, Nebraska, Kansas. ^eKentucky, Tennessee, Arkansas, Oklahoma. ^fMontana, Idaho, Colorado, New Mexico, Arizona, Utah. ^gWashington, Oregon, California.

Recent large crops of apples were produced in 1937 and 1935. This year's crop of 103 million bushels compares with 116 million bushels produced in 1937 and 104 million bushels produced in 1935.

Although the size of the 1939 commercial apple crop is about the same as that of 1935, this does not mean that prices and price trends throughout the season will be the same. Some of the factors affecting price are much different from 1935.

It is very likely that during this apple marketing year we will have the first really serious competition between a large apple crop and a large orange crop. The trend in orange production in the United States has been steadily upward

TABLE 2.—PRODUCTION OF COMMERCIAL CROP APPLES, ORANGES, GRAPEFRUIT, AND PEARS
IN THE U. S., 1932-1938, AND INDICATED PRODUCTION OF APPLES AND PEARS, 1939

Year	Commercial apples	Oranges	Grapefruit	Pears
	<i>million bushels</i>	<i>million boxes</i>	<i>million boxes</i>	<i>million bushels</i>
1932.....	90.0	51.5	15.1	24.0
1933.....	81.9	50.2	14.3	23.5
1934.....	79.9	54.4	21.4	27.4
1935.....	103.7	59.8	18.3	25.3
1936.....	75.5	56.7	30.4	26.9
1937.....	115.7	62.4	31.1	29.5
1938.....	82.4	83.2	43.0	32.5
1939.....	103.2			30.3

during the past twenty years and, on a basis of quantity available during the apple marketing year, reached a peak of 83 million boxes in 1938 (Table 2). The crop of oranges sold or to be sold during the present apple marketing year is expected to be smaller than that a year ago, but about 25 percent more than in 1935-36. The 1939 grapefruit and pear crops are smaller than in 1938 but larger than in 1935.

Expansion in industrial activity and the higher level of consumer incomes now accelerated by war conditions provide a basis of improved domestic demand for farm products. The index of non-agricultural income is expected to average 15 to 25 percent higher than in the apple marketing year of 1935-36.

The most uncertain factor in the present apple situation is foreign demand. It is reasonable to expect that exports of apples to Germany, which have declined to low levels of recent years, will be eliminated, as was the case in the first year of the World War starting in 1914.

The European and Canadian apple crops are rather large and this would have reduced United States exports even if war had not been declared. Exports to the United Kingdom, one of the principal foreign outlets for American apples, may be decreased because of the large crops in England and Canada and because of the war. Higher ocean rates, war risk insurance, import quotas, permits issued by warring nations and early establishment of rationing schemes may have an important influence.

It is estimated that the total supply of apples for domestic consumption as fresh fruit this season is about 20 million bushels in excess of the maximum quantity which, in the past few years, has returned a price to growers equal to the cost of production (Table 3).

TABLE 3.—COMMERCIAL APPLE CROPS, EXPORTS, DOMESTIC SUPPLY AND FARM PRICE, 1932-1939

Year	Commercial apple crop	Exports	Domestic supply	Farm price
		<i>million bushels</i>		<i>cents per bu.</i>
1932.....	90	14	76	60
1933.....	82	12	70	78
1934.....	80	8	72	89
1935.....	104	12	92	72
1936.....	76	7	69	106
1937.....	116	11	105	67
1938.....	82	12	70	84
1939.....	103	...	...	...

Under these circumstances the best procedure would be to: (1) use low cost marketing methods; (2) divert as large a quantity of inferior fruit as possible from fresh fruit trade; (3) store little other than U. S. No. 1 grades, and (4) push sales in the fall before large citrus crops arrive.

V. A. EKSTROM

EASTERN CORN BELT FARMERS' COOPERATIVE SHIFTS EMPHASIS TO MEET CHANGING CONDITIONS

A large number of farmers in an eastern corn-belt state are handling their dairy and poultry products in their own manufacturing plants and are marketing a substantial portion of these products through their own retail stores direct to the consumer.

This cooperative movement among these farmers started in 1922, with the organization of a cooperative creamery. This creamery later became the central plant around which three branch plants were located. This cooperative creamery was not limited its operations to buttermaking, but has engaged in the manufacture of ice cream, and the retailing of ice cream, milk, eggs, and poultry. The business

has been further diversified by handling tires, gasoline, and oil, and feed. The most recent extension to the creamery business came with the establishment of a cold storage locker system at one of the branch plants in 1938.

TABLE 1.—VOLUME OF PRODUCTS HANDLED
(Average per year)

	Butterfat purchased	Milk purchased	Eggs purchased	Ice cream sales
	1000 pounds	1000 pounds	1000 dozen	1000 gallons
1924-1928.....	925 ¹	2485	300 ¹	30
1929-1932.....	1755 ²	4600 ⁴	330 ²	60
1933-1937.....	1745 ²	3825	220	200

¹One plant. ²Two plants. ³Three plants. ⁴Volume increased substantially as operations were extended to handle market milk in a large metropolitan market—discontinued 1929.

By 1932, there was a tendency for farmers in sections of this area to gradually shift to the sale of whole milk in preference to cream (Table 1). The competition of condenseries forced this cooperative to find more profitable outlets for manufactured dairy products. Cheese had been manufactured in 1926 and 1927 without financial success. The manufacture of dried skim milk and dried buttermilk had been tried from 1926 to 1932, but proved to be unprofitable (Table 2).

The company thus considered two alternative methods of meeting the problem of decreased butterfat volume: first, by entering the condensery business, and second, by expanding the ice cream business. Condenseries were already established in the territory. This cooperative was limited by capital requirements and could not hope to compete with the condenseries already established. Consequently, they decided to attempt to expand the ice cream business. As a step in undertaking this expansion, they established their first retail dairy store in 1933. This trial store proved successful, and in the same year a subsidiary organization was created to promote the retail sale of dairy products. These farmers now own and operate over 25 stores in this area.

TABLE 2.—SOURCES OF NET PROFITS¹

	Butter	Milk ²	Eggs	Ice cream ³	Dried buttermilk and cheese	Retail stores ⁴
1924-1928.....	\$17,058	\$ - 3,428	\$1,375	\$ - 2,418	\$ 664	.....
1929-1932.....	19,625	636	1,069	-4,652	-2,583	.....
1933-1937.....	3,354	3,921	-2,032	5,588	.....	\$7,565

¹Each department charged for its share of the variable and fixed costs of the business. ²From 1924 to 1932 a considerable portion of surplus milk transferred to butter department at butterfat prices. In latter period this was transferred to ice cream at somewhat higher prices. ³Small volume and high selling costs resulted in losses, 1924-1933. With organization of stores, ice cream made a profit after paying milk department for all milk used. This resulted in profit for milk department as well. ⁴Profit in stores resulted after paying ice cream department for all ice cream and other departmental products on a cost plus basis.

Although the stores were organized chiefly to sell ice cream, a wide variety of dairy and other food products are sold. Meals are served in some of the larger stores. One of the most recent developments has been the handling of frozen fruits and vegetables.

These stores are not consumer cooperatives, but consumers have benefited through low prices for high quality dairy products. Likewise, creamery members have benefited through the operation of these stores. They are assured of a market outlet and the manufacturing and selling costs of the creamery have been lowered through increased volume of those products sold by the stores. This increase in volume reduced the joint costs for manufacturing and selling a gallon

of ice cream approximately 60 percent, and placed ice cream on a profitable basis (Table 2). Manufacturing and selling costs for other products have also been reduced by direct selling and greater diversification of the business.

The entire business of this farmers' organization has been conducted on a sound financial basis. The strong financial standing has resulted from the following policies:

1. A major portion of the capital in the business has been secured from the sale of stock.

2. As the business expanded, sale of stock to new members has been the chief source of capital needed for additional buildings and equipment.

3. A conservative manner of expansion and efficient operations has resulted in net gains for most of the period during which the cooperative has operated.

4. A substantial proportion of these net gains has been retained and invested in fixed assets and working capital and carried on the books as reserves and surplus.

5. Some of the unprofitable phases of the business were dropped, and at the same time new undertakings were tried in an attempt to increase profits.

The diversification of the business of this cooperative creamery to include direct retail selling and additional services for members and patrons has developed a strong marketing organization. Although these farmers have not been able to sell their entire volume of dairy products through the stores, the volume so disposed of has increased as more stores have been established and as sales of older stores have increased.

G. W. FREEMYER

AGRICULTURAL ECONOMIC FORUMS ON THE AIR

EVERY FRIDAY AT 12:30 P.M.

STATION WIL L, 580 KILOCYCLES

Nov. 3—Bettering Rural Schools.—D. E. LINDSTROM, G. T. HUDSON, and C. L. STEWART.

Nov. 10—Food Problems in the Warring Countries.—C. L. STEWART and Farm Advisers.

Nov. 17—The Current Economic Situation as it Affects the Farmer.—G. L. JORDAN, F. G. WARREN, and C. L. STEWART.

Nov. 24—Planning the Farm Business, Question Box—H. C. M. CASE, E. M. HUGHES, and C. L. STEWART.

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	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. In money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period	1926	1926	1924-29	1924-29	1924-29	1924-29	1924-29	1924-29	1923-25	1923-25
1929	95	105	104	99	103	103	104	108	110	119
1930	86	88	89	94	83	87	93	101	89	96
1931	73	65	62	80	58	58	72	86	68	81
1932	65	48	41	69	43	43	62	68	47	64
1933	66	51	45	71	49	51	72	64	50	76
1934	75	65	61	80	57	55	69	73	64	79
1935	80	79	82	81	64	65	80	78	74	90
1936	81	81	86	80	75	82	102	88	86	105
1937	86	86	96	84	81	86	102	96	102	110
1938	79	69	69	80	70	81	101	90	78	86
Sept.	78	68	69	78	73	73	94	90	81	90
Oct.	78	67	64	78	68	73	94	90	84	96
Nov.	78	68	66	78	70	90	116	92	84	103
Dec.	77	68	66	78	68	80	103	95	87	104
1939 Jan.	77	67	66	78	68	99	127	92	83	101
Feb.	77	67	66	78	60	82	105	92	85	98
Mar.	77	66	66	78	64	103	132	92	87	98
Apr.	76	64	64	78	64	75	96	90	85	92
May	76	64	65	78	65	82	105	91	84	92
June	76	62	62	78	60	72	92	93	86	98
July	75	63	61	78	62	67	86	93	84	101
August	75	61	58	77	71	60	78	94 ¹¹	...	102 ¹¹
Sept.	78 ¹¹	68 ¹¹	70	79	...	...	...	...	...	...

TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS¹³

Product	Calendar year average			Sept. 1938	Current months		
	1924-29	1937	1938		July	August	Sept.
Corn, bu.....	\$.81	\$.94	\$.45	\$.44	\$.41	\$.38	\$.51
Oats, bu.....	.42	.39	.24	.20	.24	.24	.31
Wheat, bu.....	1.30	1.10	.68	.55	.58	.57	.75
Barley, bu.....	.66	.84	.53	.44	.37	.36	.43
Soybeans, bu.....	1.94	1.20	.75	.65	.70	.60	.70
Hogs, cwt.....	9.97	10.11	8.06	8.60	6.40	5.50	7.40
Beef cattle, cwt.....	8.57	8.93	7.68	8.20	7.80	7.70	8.60
Lambs, cwt.....	12.22	9.58	7.76	7.60	8.00	7.60	8.40
Milk cows, head.....	78.00	61.00	60.00	58.00	63.00	60.00	61.00
Veal calves, cwt.....	11.27	9.43	8.89	9.40	8.60	8.70	9.50
Sheep, cwt.....	6.52	4.09	3.36	3.20	3.10	2.80	3.40
Butterfat, lb.....	.42	.32	.25	.23	.20	.21	.23
Milk, cwt.....	2.32	1.92	1.66	1.60	1.45	1.50	1.55
Eggs, doz.....	.30	.20	.19	.22	.13	.13	.16
Chickens, lb.....	.21	.16	.15	.14	.14	.13	.13
Wool, lb.....	.36	.32	.21	.20	.24	.24	.29
Apples, bu.....	1.59	1.18	.95	.95	.75	.65	.70
Hay, ton.....	13.38	12.41	7.65	6.40	5.70	5.40	6.00
Potatoes, bu.....	1.39	1.12	.73	.60	.80	.75	.85

¹⁻¹²For sources of data in tables see previous page.

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Director, Extension Service in Agriculture and Home Economics, University of Illinois

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ILLINOIS FARM ECONOMICS

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G. L. Jordan, Editor

November, 1939

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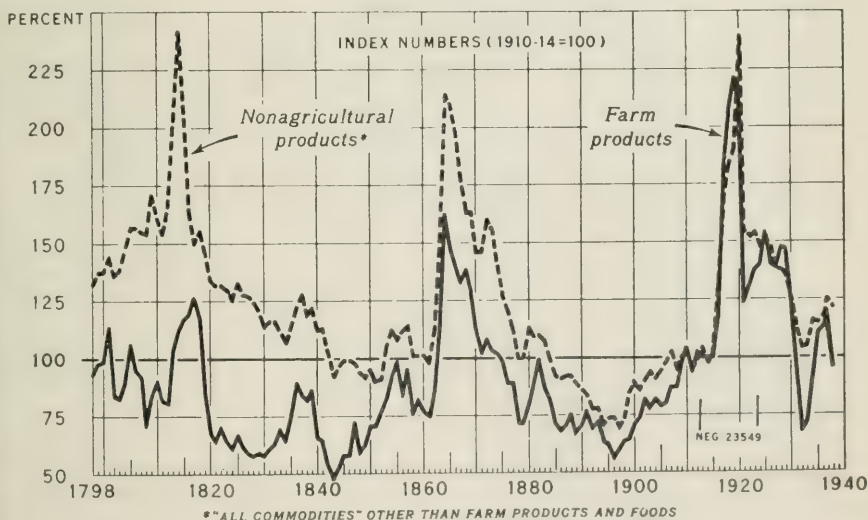
PRICE INFLATION: CAUSES AND PROSPECTS

Part I. Causes of Inflation

Will there be price inflation in the United States? This question is of utmost importance to farmers as well as to all other people in the country. It is a question to which no one really knows the answer, for the final answer depends upon several unknown contingencies. Nevertheless, it is important to know what are the conditions which may bring about inflation and to recognize the symptoms if inflation gets under way.

There has been much argument as to just what constitutes inflation of prices. As we look back on the history of the United States, most people agree that there was severe inflation during the Revolutionary War, and again during the War

WHOLESALE PRICES OF FARM AND NONAGRICULTURAL PRODUCTS, 1798-1938



of 1812, the Civil War, and the World War. A general impression of what happened to prices in the last three of these four wars may be had from Figure 1. In each case there was a very great and rapid rise in the average level of commodity prices. Whether or not there was inflation during some other periods of less extreme price rises is, perhaps, open to question. However the important problem before us now is whether there is likely to be a rise of prices, comparable in magnitude to the rise during the three war periods shown by Figure 1.

It is to be noted, first of all, that in each of these three periods of price inflation the United States was involved in a major and prolonged war. There was no great rise of prices during the Indian wars, the Mexican War or the War

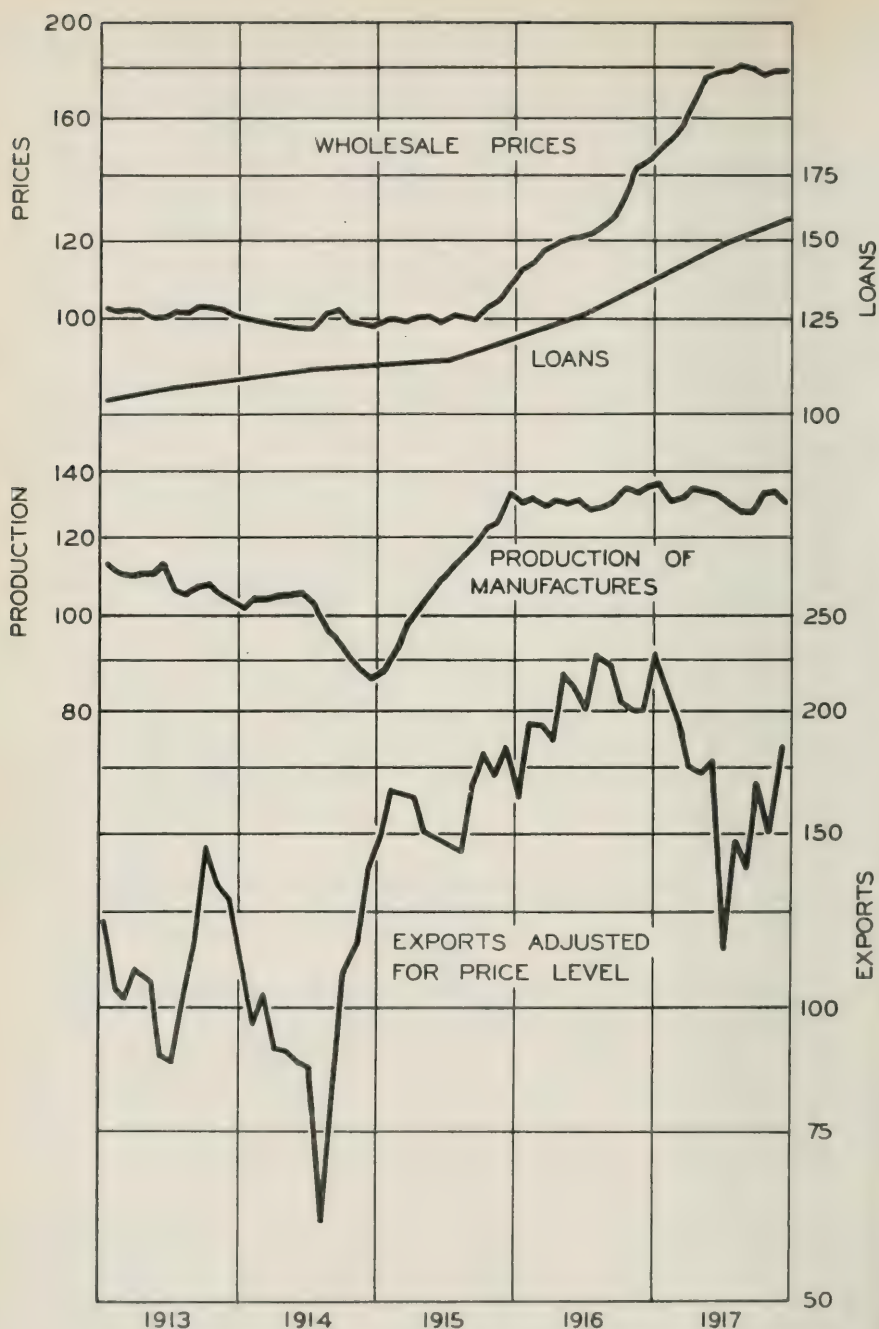


FIG. 2. INDEXES OF WHOLESALE PRICES, BANK LOANS, PRODUCTION OF MANUFACTURES, AND "DEFLATED" VALUE OF EXPORTS. (JULY, 1909 - JUNE, 1914 = 100)

with Spain. Furthermore, the price level of the United States has been but little affected by numerous important wars in other parts of the world.

It is not safe to conclude, however, that there will be no inflation in the United States so long as the United States does not enter the war. The United States did not enter the World War until April, 1917, yet from July, 1914 to March, 1917 there was an increase of 60 percent in wholesale prices. Furthermore the rate at which wholesale prices rose from the beginning of 1916 until March, 1917 was greater than the rate of increase during the months when the United States was at war.

An outstanding characteristic of each of these great inflation periods in the United States has been an urgent and long-continued demand for United States produced goods with which to carry on war. Munitions and materials with which to make munitions have been chief among the goods for which the demand was increased, but at times ships and foodstuffs have been of great importance.

Other circumstances have also contributed to price rises during these periods. For example, in the War of 1812, the United States was virtually cut off from goods manufactured in Europe and this reduction in the supplies of normal peacetime goods was a primary cause of increased prices. During the Civil War the large issues of paper money and the depreciation of our currency in terms of gold was of great significance in influencing the character of the inflation. During the World War the increased costs of ocean transportation affected the price structure of the whole world.

Although the demand for war-goods in the United States may be said to be the primary cause of the four great inflations, such a demand in itself is not sufficient. In order for there to be a typical price inflation it is necessary that the war-goods be purchased, in part at least, by means of money or credit expansion. The continental currency of the Revolutionary War and the greenbacks of the Civil War are well known examples of paper money issued by our government to pay for its purchases of war materials and supplies. Other examples are the paper currencies of Germany and France which were issued during and immediately following the World War. In each of these cases the paper money, although it was the "legal tender," depreciated in terms of metallic money (gold or silver) and in terms of the currencies of other countries which maintained the convertibility of their currencies.

During the World War there was a "credit inflation" rather than a "currency inflation" in the United States. The rate at which bank loans increased relative to prices in the early years of the war is shown by Figure 2. No unsecured paper money was issued and, although gold was withdrawn from ordinary circulation, substantial convertibility of currency into gold was maintained. Nevertheless the course of prices was quite similar to that of periods when price inflation was facilitated through the printing of fiat currency.

The people who produce goods or render services, receive incomes equal to the current value of those goods and services. Some of the income is in the form of wages, some in the form of profits, and some in other forms. If a man produces something for his own use the income is the product itself, but when the goods or services are sold, the money (or credit) received is ordinarily used to purchase from others. In this process of exchange the current value of the supply of things placed on the market in any given period of time is usually substantially equal to the amount of purchasing power which people have to spend in the same period of time. Furthermore the maintenance of this substantial equality of production and purchasing outlay does not ordinarily require any material change in the average price level from one period of time to the next.

But when a country is at war this balance of production and expenditure is usually upset. The individuals who are producing continue spending their income

much as they are accustomed. The government, however, comes into the market for large quantities of munitions and other war supplies. If the purchasing power which the government uses were first obtained from taxes, then the expenditures of individuals for goods and non-governmental services would be reduced as much as government expenditures were increased. But taxes cannot usually be increased as rapidly as expenditures, so the government must resort to printing money or to borrowing. If the purchases are financed by borrowing the balance of production and expenditure might be maintained if individuals would give up purchasing power as rapidly as the government borrowed. Here again, however, the exigencies of the situation are likely to result in much of the purchase of war supplies and munitions being financed through the expansion of bank credit. In such circumstances, goods begin to be purchased more rapidly than they have been produced. The first effect may be to increase production, but if the process continues until production reaches its limit the only way supply and demand can be made equal is through increasing prices.

The increase in prices, however, serves to maintain the balance only temporarily, for as prices rise, so do the incomes of the producers. Producers in turn increase their expenditures, prices rise further—and so the upward spiral of inflation tends to go on and on as long as the printing of paper money or the expansion of bank credit continues.

In the United States during the World War there were three principal ways in which money purchasing power rose through bank credit expansion. There was first of all direct borrowing by the government from banks. Then many individuals purchased Liberty Loan Bonds "on time"—paying a relatively small amount down and borrowing the remainder from banks. Finally, it was common practice to use the bonds as a means of purchasing automobiles and other things. Automobile dealers advertised that you could be patriotic *and* buy a car—they offered to accept the bonds at par (or even at a premium) on the purchase price of their cars. These bonds were then likely to be the basis for further bank loans.

But if war-time credit expansion brings price inflation why does not peace-time credit expansion do the same thing? This is a very pertinent question in view of the rapid expansion of bank investments during the past six years. First of all, bank loans made in peace time are primarily for the purpose of financing some form of production (including marketing) whereas war purchases are for consumption. In peace time, consequently, an expansion of bank credit is likely to be followed or accompanied by an expansion of production which tends to decrease prices. One effect tends to counter-balance the other. When a country is at war, on the other hand, increasing bank credit for war materials is likely to be accompanied by the withdrawal of workers from productive pursuits to the army and hence by a decrease in production. Then the price raising effect of larger purchases is not counter-balanced by increased production and may even be reinforced by decreased production.

Furthermore, in ordinary times the price level of a country depends upon a number of different sorts of forces, and the volume of credit is more likely to be affected by changes in the price level than the reverse. Even in war-time, credit expansion is not so much a fundamental cause of inflation as a means by which a new demand may be made effective without a corresponding reduction in money expenditures from other sources.

Ordinarily, short-period price level changes in a country are primarily dependent upon what may be termed "price structure" relationships. Prices of commodities which enter into international trade tend to remain steady or to rise and fall together in all importing and exporting countries. Furthermore, because of the effects of changes in the "international commodities" (those imported and ex-

ported) upon other goods in each country, the average levels of wholesale prices in such countries tend to move together. This is true as long as the various countries maintain either the gold standard or a stable foreign exchange value of their currency. In addition to the international price relationships the level of prices is powerfully affected through the rigidity of many commodity prices combined with the fact that the prices of the more flexibly priced commodities are raised and lowered *relative* to the rigid prices by the fluctuating conditions of supply and demand. In peace-time all these price relationships and price rigidities tend to prevent any large rise in the average level of commodity prices. (They do not correspondingly limit price declines during depressions.) The amount of bank loans is consequently primarily dependent upon price level and business activity rather than the price level being dependent upon the amount of credit extended.

During a large scale war, however, the price structure relationships which tend to limit price rises are usually broken down in the warring countries and greatly weakened, at least, in the neutral countries. The countries at war are almost certain to allow their currencies to depreciate because of the exigencies of war-time finance. This in turn reduces the tendency for international price relationships to restrain rising prices in other countries. The internal restraint on price rises which results from rigidities of prices of many industrial commodities is also likely to break down. Once industrial production approaches or reaches the peak of capacity the prices of commodities which were formerly rigid are very likely to become sensitive to changes in demand—especially an increased export demand. During the World War, for example, wholesale prices did not begin to rise materially until late in 1915 just as the production of manufactures was approaching its maximum (Figure 2).

E. J. WORKING

[“Part II. Prospects for Inflation” will appear in the December issue.—Ed.]

LAND VALUES IN RELATION TO FARM EARNINGS

The way in which land prices doubled during the World War period, the resulting farm debt difficulties of recent years, and the world-wide war conditions of the present day are good reasons for considering the relationship between land values and farm earnings.

Land values prior to 1920 were not closely associated with farm earnings. An average Illinois farm purchased in 1850 and sold in 1920 would have netted, at compound interest rates, a four percent return on the investment without including income or expenses of operation during that period. During the last 20 years of this period the advance in land values averaged ten percent annually in many central Illinois counties.

Except for the war and post-war years of 1917-1920, landlords did not receive a net rent of more than a two to three percent return on the current selling price of land. The annual advance in the price of land, therefore, was from three to five times as great as the net earnings during much of the period from 1900 to 1917. Many owners were receiving a good return on the original investment in and, but due to rapidly advancing land prices, the earnings were low in relation to the current selling price of land.

With the collapse in land prices which took place following 1920 and the debt problems which followed, we need to give careful thought to future land price trends. Few happenings can be more disastrous to a community than those resulting from the debt situations of 1931-1934 when many men who were in the prime of life and reaching a position of constructive influence in the community suddenly became victims of a credit disaster that they were powerless to withstand.

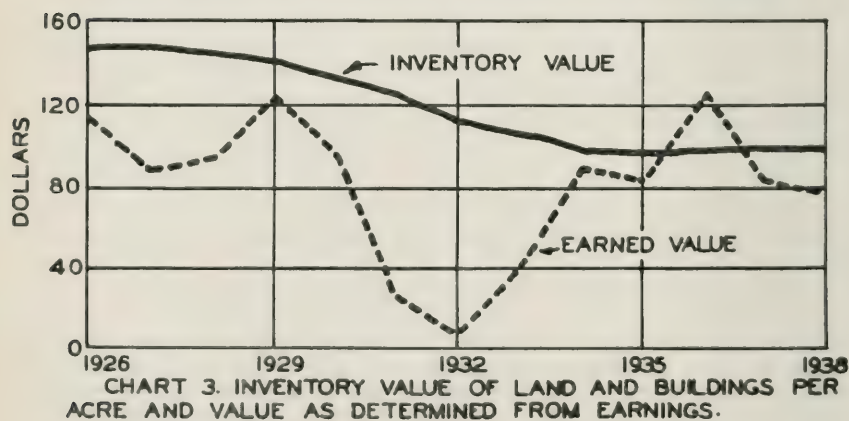
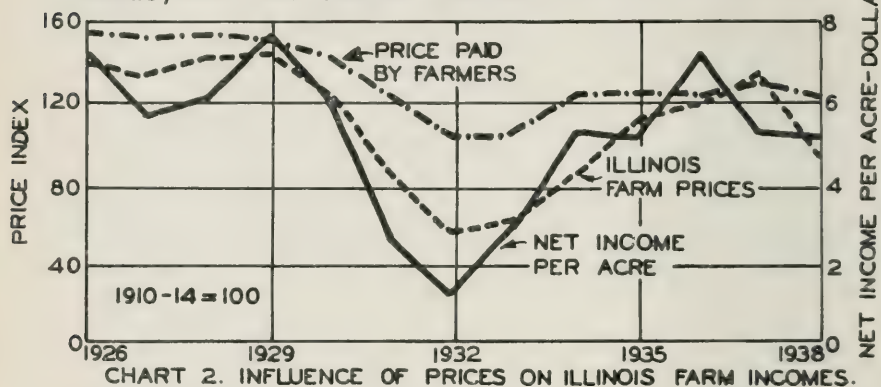
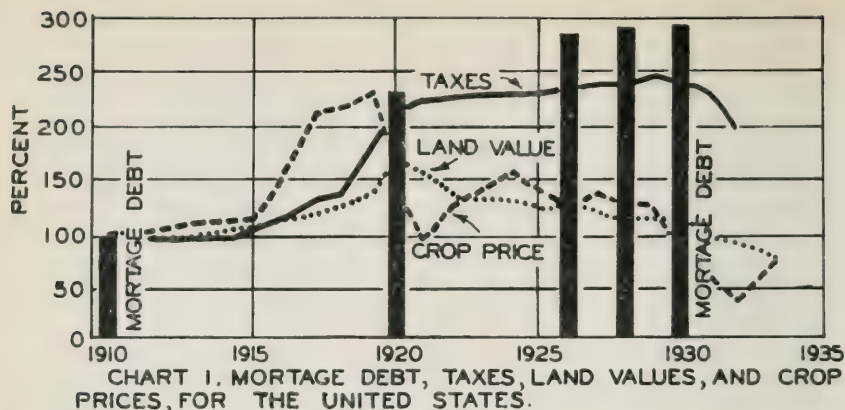


Chart 1 shows that land values increased about 70 percent from 1910 to 1920 for the United States. They more than doubled in many parts of Illinois. This rise in land values reflected the rise in prices of farm products—illustrated by the level of crop prices rising more than 130 percent above the 1910-1914 prewar average. The farm mortgage indebtedness and taxes increased in a similar way. Following 1920, however, crop prices reached a low of 50 percent of the prewar level in 1932, and one or two years later, land values fell to 75% of the prewar

level. Unfortunately, the mortgage indebtedness failed to go down with the prices of farm products and in 1930 stood at nearly three times the 1910 level and would have exceeded three times the 1910 level except for a large amount of farm mortgage foreclosure and the voluntary deeding of farm property to creditors. The failure of mortgage indebtedness to adjust itself to the price level is one of the major problems of the agricultural industry.

The 19,000 farm financial records collected by the Department of Agricultural Economics over the past 13 years give an interesting picture of the farm earnings and land values. Chart 2 shows the average net cash receipts per acre based on the average of all accounting farms in the state from 1926 to 1938. The earnings in eight different farming-type areas were weighted according to the amount of land in each area. The net cash earnings assigned to land and buildings were \$7.30 in 1926 and \$7.80 per acre in 1929, but dropped to \$1.50 in 1932, showing how dependent the net returns in agriculture are upon the price level. This is indicated by the trend in prices of Illinois farm products. The prices paid by farmers for goods purchased never fell below 100 percent of the prewar average. The farmer, however, adjusted his purchases to his income. This is illustrated by the expenditure for farm machinery which in 1926 was \$500 and in 1929, \$646, but in 1933 fell to \$250. Beginning in 1936, the expenditure for machinery was \$840, \$956, and \$925 annually on the accounting farms.

While the farmers keeping accounts have been encouraged not to revise the inventory value of land and buildings quickly in response to price changes, the farmer's estimate, based on the accounts, shows a downward trend of land values over the thirteen-year period from \$158 to \$98 per acre (Chart 3).

Table 1 shows the annual earned value of land and buildings, based on the capitalization of earnings at 5 percent in each of the eight areas included in the analysis. In Area 1, representing the Chicago whole-milk area, an earned value of land and buildings of more than \$100 during the first five years of the period 1926-1938 is indicated; but a low point was reached in 1935. The low point in earnings came later than in many other areas, because of the maintenance of city wages for some time following the drop in prices of most major farm products, particularly the grain crops. However in 1935 other sections of the state turned to dairying to help make farm income meet expenses and prices of dairy products were reduced because of the increase in the supply.

In Areas 2 and 3 in the northwest and western parts of Illinois similar earnings are indicated because income came from the same kinds of products—beef cattle, hogs, and some sales of dairy products and grain. In Area 4, the grain-farming section of east-central Illinois, better earnings are indicated than for some areas. This is due to fair crops in this area in the drouth years of 1934 and 1936 in contrast to low returns on many farms in Illinois but more especially in states west of the Mississippi River. In Area 5, lying south and west of Springfield, lower earnings are shown because of general soil conditions and more severe drouth conditions in 1934 and 1936. Areas 6, 7, and 8 all show years in which the income did not equal expenses and a correspondingly lower earned value for land and buildings. These data are helpful in showing the importance of considering the long-time earnings on farms as a basis for determining the actual value of land.

A review of such data is valuable as a warning against letting a short-time rise in prices influence one's judgment of land values. Land must be paid for by the average purchaser from earnings obtained over a long period of years. Land prices, therefore, should be based upon expected earnings over a long period of time. If the present European War should cause higher prices for farm products because of our nearness to Europe as happened during the World War, let us not make the same mistake of bidding the price of land up to a level that cannot be maintained by farm earnings.

TABLE 1.—EARNED VALUE OF LAND AND BUILDINGS BASED ON NET CASH EARNINGS
PER ACRE BY FARMING-TYPE AREAS AND BY YEARS

Year	Area I	Area II	Area III	Area IV	Area V	Area VI	Area VII	Area VIII	State Average ¹
1926.....	\$147	\$169	\$146	\$118	\$119	\$44	\$45	\$89	\$113.8
1927.....	147	110	119	96	35	43	50	75	84.2
1928.....	100	71	99	166	90	5	-27	46	93.3
1929.....	162	147	163	158	104	61	13	57	122.6
1930.....	117	124	120	120	91	27	-7	36	91.6
1931.....	69	60	43	33	13	-2	-18	-5	26.6
1932.....	54	10	19	9	3	-12	-9	-9	7.4
1933.....	55	42	67	45	43	18	14	14	41.4
1934.....	62	94	104	121	83	37	28	55	88.0
1935.....	35	123	96	95	66	47	42	72	80.6
1936.....	121	152	152	173	79	48	37	71	122.9
1937.....	112	109	92	99	70	45	7	63	79.7
1938.....	59	86	103	103	68	33	10	33	75.8
Average earned value 13 years....	95	100	102	103	66	31	14	46	...

¹Farming-type area averages were weighted by number of acres of land in farms in each area.

What land is worth to the individual farmer finally depends upon two major conditions—his ability as a manager and the way the land has been handled over the past half century or longer. Some men have maintained the productivity of their farms and have earned from \$1,000 to \$3,000 more per year than other farmers in the same area on farms of like size, similar soil conditions, and having access to the same market. While a large part of this difference is due to individual management, it is known that some men who are good managers are attempting to build up badly depleted farms which it will require some years to reestablish on a highly productive basis.

In general, farmers with higher than average earnings will be the future land buyers among farmers. Because of their superiority as farmers they will be able to pay more for land than the average farmer. The average farmer over a period of years will, on the basis of past experience, make a lower return on the investment than the going rate of interest on farm mortgages. The competition to buy land on the part of the best farmers and city people who have capital to invest tends to set land prices at a higher level than the earnings of the average farmer justify when the debt burden of the average land purchaser is considered.

Frequently the home value of a farm is mentioned indicating that this justifies a higher price for the land. The man who buys a farm expecting to pay for it out of the earnings from farming cannot afford to pay an additional price above the earning value of the land for the home value of a property unless he is able to make larger earnings from the land than would the average farmer. Likewise land has a speculative value when there is possibility of realizing on mineral resources, but land limited to agricultural purposes should be valued on the basis of the future income from farming.

During recent years farmers have received the benefit of a reduction of from one to two percent in the interest rate on farm mortgages. If a marked increase in the prices of farm products should occur for a short period of time, it is to be hoped that land prices will not increase as they did in the period 1917-1920. If lower interest rates should have the effect of helping to raise the price of land so that the farm purchasers would have as much interest to pay on debts annually as they did at the higher interest rates it would be detrimental to farmers generally. Low interest rates on farm mortgages have the tendency to increase land prices. It is conceivable that land carrying an \$80 debt with 5% interest might advance in price to a \$100 debt with interest at 4%. The annual interest payment would be the same in each instance but a disadvantage results from the advance in price of land, which in this case, gives the purchaser a \$20 an acre larger mortgage to pay off and very likely an increase in taxes.

Finally, if there should be a decided upward trend in farm earnings for a short time growing out of the European war, it should be remembered that the only people who profit from high land values are those who sell the land and do not re-invest the proceeds in more land at equally high prices, or those who are paid for their services in helping to sell land. The average purchaser who pays a higher price for land must assume a larger debt and often finds it necessary to accept a lower standard of living for his family because of his debt load.

H. C. M. CASE

NEEDED: FLEXIBLE CASH RENT

Changes in the prices of farm products and the uncertainty of future prices raise many questions regarding a fair basis for arriving at cash rentals. The tenant who contracts to pay a given amount of cash rent for his farm when prices are high frequently cannot meet his rental obligations from his current income when prices fall to a low level. On the other hand, the landlord who rents his property for a fixed sum in a time of low prices may not be receiving a fair share of the income from the farm when prices rise. Hence both parties have reason to be interested in a type of contract that provides for the sharing of the risks caused by price variations in farm products.

Fortunately a large proportion of farm leases in Illinois stipulate payment of rent either entirely or partially by shares of the crops grown. In so far as rentals are based on share payments they automatically adjust themselves fairly well to changes in the price-level. The recent trend in farm leasing seems to have been away from cash leases, probably because the many variations in prices of farm products that have occurred in the last 20 years have continually made it difficult to estimate in advance what should be the cash rental of a property.

If a tenant has reasonably normal yields, it is fair that he should pay the present value of the same amount of produce formerly required to pay the cash rent. Some such annual settlement on a price-adjusted basis is usually better for both landlord and tenant than allowing the entire rent to stand as an accumulated debt, around which resentments are likely to develop.

The adjusting of cash rentals to current prices of farm products can be done either where the entire rental is on a fixed cash basis or where the cash rental applies only to pasture, meadow, and land used for lots and buildings. The products used in calculating the adjustments will of course vary from area to area and even from farm to farm, depending on the share of the farm income that is derived from each source.

In a grain-farming area, where the income is mainly from the sale of corn and oats, it might be fair to base the cash rent on the price of corn alone, as the prices of these two grains usually change in the same proportion, both being feed grains.

Assuming that the cash rent was \$6 an acre on a grain farm and that over a period of years the price of corn in that area has averaged \$.60 a bushel. The rent has been equivalent to ten bushels of corn per acre. The lease might be adjusted to care for variation in price levels by permitting the tenant to pay his rent on the basis of the current price of ten bushels of corn per acre or to deliver that amount of corn to his landlord. On a dairy farm where the tenant has paid \$6 an acre cash rent and the local price of milk has been \$2 per hundred, the rental has amounted to the price of 300 pounds of milk for the rental of an acre of land. More than one product might be used as the basis of determining the amount of rent to be paid on farms receiving income from several sources.

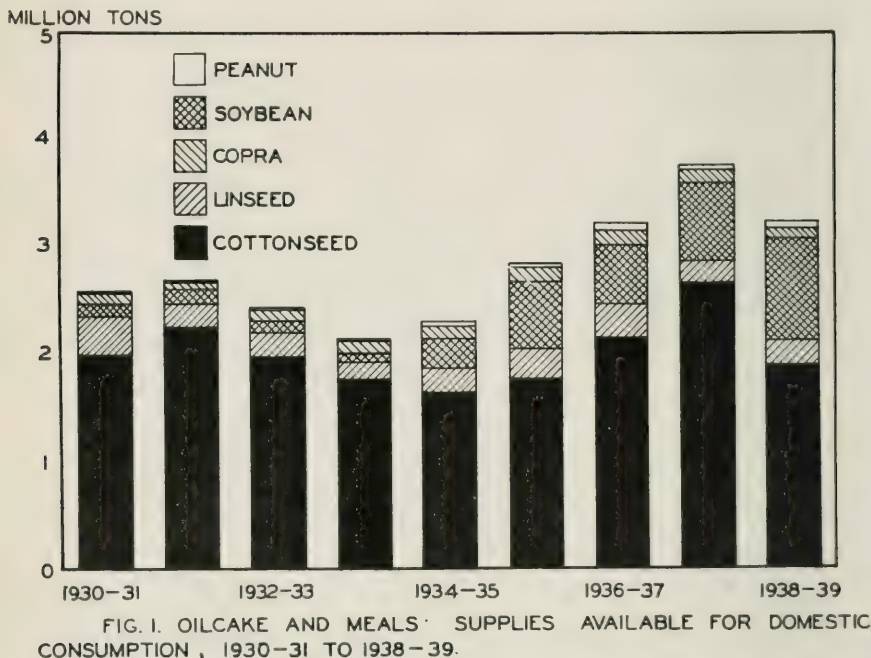
Many leases, where similar rental adjustments have been made, seem to be working out to the satisfaction of both landlords and tenants. A more detailed analysis of methods of adjusting cash rentals to meet changes in prices is con-

tained in a mimeographed circular entitled, "Determining Cash Rents on the Basis of Farm Prices." A copy may be obtained by writing to the Department of Agricultural Economics.

H. C. M. CASE

THE COMPETITIVE POSITION OF SOYBEAN MEAL

Soybeans are used in the United States for many different purposes, but their commercial value is largely determined by the combined values of the oil and meal obtained by crushing the beans. A bushel of soybeans usually yields about 9 pounds of oil and 48 pounds of meal. The meal is the more important, having



been in recent years worth about 50 percent more than the oil. We discussed the competitive position of the oil in the June and July issue of this publication, and now turn our attention to the competitive position of the meal.

Soybean meal can be, and is, used for many purposes, but in the United States about 99 percent of it is used as feed for livestock. In the United States cottonseed meal has made up the bulk of the supply of oilseed meals for many years. In 1934-35, the quantity of soybean meal first exceeded that of linseed meal. Only cottonseed meal exceeded soybean meal in quantity since that time (Fig. 1). During the year 1938-39, the total supply of the five principal oilseed meals available for domestic consumption was about 3,300,000 tons, of which approximately 30 percent was soybean meal; 58 percent, cottonseed meal; 7 percent, linseed meal; 3 percent, copra meal; and 2 percent, peanut meal.

For most feeding purposes soybean meal can be substituted quite readily for the other oilseed meals. During the three years, 1935-36 to 1937-38, the price of soybean meal at Chicago averaged about \$6.40 a ton higher than the price of cottonseed meal at Memphis (Fig. 2). This difference is largely a reflection of transportation costs. From 1935-36 to 1937-38, Chicago prices for soybean meal

and cottonseed meal were approximately equal. In 1934-35 and again in 1938-39, however, soybean meal sold lower than cottonseed meal at Chicago.

Changes in the prices of oilseed meals in general are closely associated with changes in the price of feed grains: during the 9 years, 1924-25 to 1933-34, the price of cottonseed meal at Memphis averaged 20 percent higher than the price of corn at Chicago.

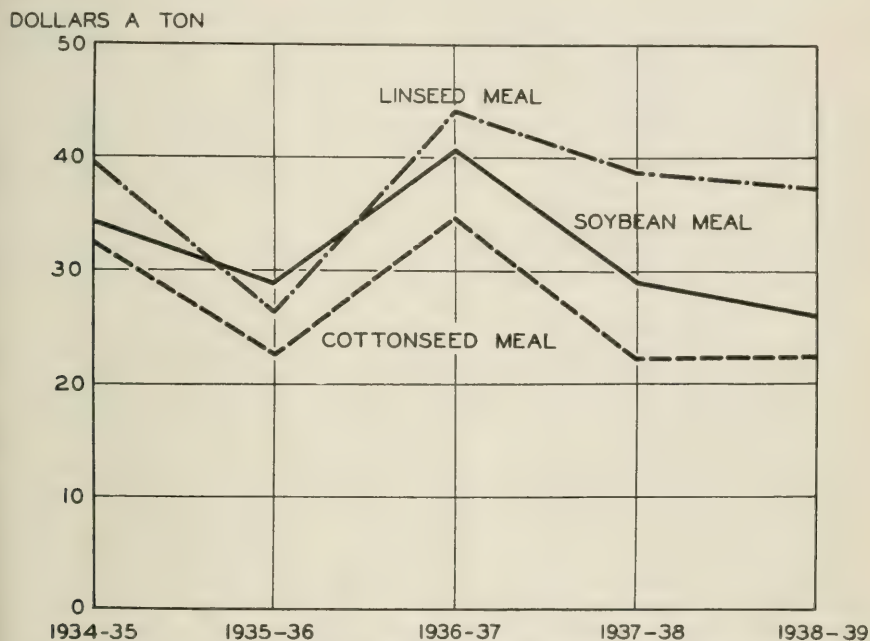


FIG. 2. PRICES OF SOYBEAN, COTTONSEED, AND LINSEED MEAL, 1934-35 TO 1938-39.

(Linseed Meal, Minneapolis; Soybean Meal, Chicago; Cottonseed Meal, Memphis)

The potential demand for high protein feeds in the United States is quite large. While adequate figures are not available, it appears that an increase of about one-third in supplies of protein supplements is needed to balance the supply of corn as a ration for hogs, cattle, poultry, and sheep.

Soybean meal is not a by-product, but the principal protein feeds with which it competes most directly—cottonseed meal and tankage—are minor by-products of other industries, and their production does not depend upon their price. Hence, soybean meal, like soybean oil, can be subjected to great competitive pressure. At the present, however, it appears that the position of soybean meal is comparatively stronger than that of the oil, because of the large potential demand for oilseed meals.

To put it in another way, protein products are in a stronger position than fats. While the increase in hog numbers has brought increased competition for soybean oil by producing larger quantities of lard, it has increased the demand for soybean meal as feed for hogs. The higher price for soybeans this fall as compared with last year is due largely to the higher price of soybean meal.

L. H. SIMERL

TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural income ⁸	Factory payrolls ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ⁴	Prices paid by farmers ⁵	U. S. In money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period.....	1926	1926	1924-29	1924-29	1924-29	1924-29	1924-29	1924-29	1923-25	1923-25
1929.....	95	105	104	99	103	103	104	108	110	119
1930.....	86	88	89	94	83	87	93	101	89	96
1931.....	73	65	62	80	58	58	72	86	68	81
1932.....	65	48	41	69	43	43	62	68	47	64
1933.....	66	51	45	71	49	51	72	64	50	76
1934.....	75	65	61	80	57	55	69	73	64	79
1935.....	80	79	82	81	64	65	80	78	74	90
1936.....	81	81	86	80	75	82	102	88	86	105
1937.....	86	86	96	84	81	86	102	96	102	110
1938.....	79	69	69	80	70	81	101	90	78	86
1939.....										
Oct.....	78	67	64	78	68	73	94	90	84	96
Nov.....	78	68	66	78	70	90	116	92	84	103
Dec.....	77	68	66	78	68	80	103	95	87	104
Jan.....	77	67	66	78	68	99	127	92	84	101
Feb.....	77	67	66	78	60	82	105	92	86	98
Mar.....	77	66	66	78	64	103	132	92	88	98
Apr.....	76	64	64	78	64	75	96	90	86	92
May.....	76	64	65	78	65	82	105	91	85	92
June.....	76	62	62	78	60	72	92	93	87	98
July.....	75	63	61	78	62	67	86	93	84	101
August.....	75	61	58	77	71	60	78	94	90	103
Sept.....	79	69	71	79	92	73	82	95	94	111 ¹¹
Oct.....	79 ¹¹	67 ¹¹	67 ¹¹	79						120 ¹¹

TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS¹²

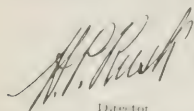
Product	Calendar year average			Oct. 1938	Current months		
	1924-29	1937	1938		August	Sept.	Oct.
Corn, bu.....	\$.81	\$.94	\$.45	\$.36	\$.38	\$.51	\$.42
Oats, bu.....	.42	.39	.24	.20	.24	.31	.28
Wheat, bu.....	1.30	1.10	.68	.56	.57	.75	.74
Barley, bu.....	.66	.84	.53	.43	.36	.43	.44
Soybeans, bu.....	1.94	1.20	.75	.60	.60	.70	.70
Hogs, cwt.....	9.97	10.11	8.06	7.40	5.50	7.40	6.70
Beef cattle, cwt.....	8.57	8.93	7.68	7.80	7.70	8.60	8.40
Lambs, cwt.....	12.22	9.58	7.76	7.30	7.60	8.40	8.30
Milk cows, head.....	78.00	61.00	60.00	60.00	60.00	61.00	62.00
Veal calves, cwt.....	11.27	9.43	8.89	9.20	8.70	9.50	9.60
Sheep, cwt.....	6.52	4.09	3.36	3.30	2.80	3.40	3.20
Butterfat, lb.....	.42	.32	.25	.23	.21	.23	.25
Milk, cwt.....	2.32	1.92	1.66	1.65	1.50	1.55	1.75
Eggs, doz.....	.30	.20	.19	.24	.13	.16	.20
Chickens, lb.....	.21	.16	.15	.13	.13	.13	.12
Wool, lb.....	.36	.32	.21	.20	.24	.29	.33
Apples, bu.....	1.59	1.18	.95	1.05	.65	.70	.70
Hay, ton.....	13.38	12.41	7.65	6.30	5.40	6.00	5.80
Potatoes, bu.....	1.39	1.12	.73	.60	.75	.85	.80

¹⁻¹²For sources of data in tables see October issue.

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 Director, Extension Service in Agriculture and Home Economics, University of Illinois

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G. L. Jordan, Editor

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Number 55

PRICE INFLATION: CAUSES AND PROSPECTS

Part II. Prospects for Inflation

In appraising the prospects for inflation in the United States during the present European War, we find that there are some elements in the situation for which the outlook is fairly clear. There are other things for which the outlook is very obscure.

Perhaps the clearest prospects concern currency depreciation. By currency depreciation is here meant a decline in the value of currency relative to gold. There seems no likelihood of such an occurrence in the United States. Stocks of gold in the United States are not only adequate as a basis for our currency—they are super-abundant and promise to increase still further. Hence, a lack of gold will not force us off our present gold standard. Then too, there seems to be no possible reason during the present war for an arbitrary reduction in the gold value of the dollar such as occurred in 1933 and 1934. Our government now wishes to avoid a general rise of prices rather than to encourage it. Currency depreciation (in terms of gold) consequently may not be expected to contribute to inflation in the United States during the present war as it did during our Civil War.

Increased costs of ocean transport promise to play a somewhat similar role during the present war as during the World War. These costs include both ocean freights and insurance. Rising transportation costs tend to increase the difference between the price of a commodity in importing and exporting countries. There are, however, important differences between exporting countries. Those exporting countries which are nearest the import markets have their prices increased compared to the more distant countries. During the World War the increased cost of ocean transportation was a contributing cause to the rise of prices in the United States, partly because the United States was the nearest available source of large supplies of raw materials and foodstuffs for Europe, and partly because of the increase in costs of importing into the United States. However, increased transport costs were not a major factor in the price inflation of the United States during the World War and they seem likely to be of somewhat less importance in the current conflict. Shipping facilities are much greater than during the World War and larger supplies of foodstuffs and war materials are available in Canada now than in 1914. Furthermore, the prices of more important commodities in the United States are now on a domestic rather than either an export or import basis than was the case during the World War.

Price rises, because of usual sources of supply being cut off, have already occurred in the present war. However, the cutting off of accustomed sources of supply will not be a major factor of importance in this war as it was in the War of 1812 because we are much less dependent upon foreign goods. Rather, its effect will be minor as was the case during the World War. It is to be borne in mind, however, that during the latter war the United States was also cut off from important export outlets in Central Europe, and this was a price depressing factor. In recent years the United States has marketed relatively few goods in Central Europe. Altogether, the cutting off of import and export trade with

Central Europe is likely to have only a minor net effect on prices in the United States.

During all the major war-time inflations in the United States, the most important factor has been an urgent demand for more United States goods with which to carry on the wars. Large scale wars, of course, require large quantities of munitions and other supplies. The current war promises to be highly mechanized—a war in which there will be widespread use of various sorts of war machines, ranging all the way from motorcycles to bombing planes and battleships. The extent to which foodstuffs, raw materials, and manufactured goods will be bought in the United States, however, is uncertain. It will depend upon the length of the war, the magnitude of military operations, the ability of the warring nations

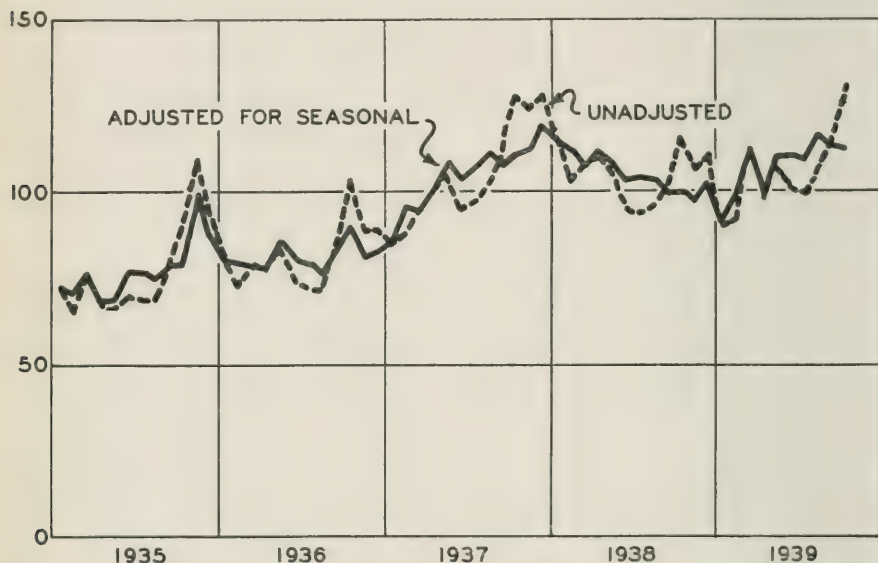


FIG. 1. QUANTITY OF UNITED STATES MERCHANDISE EXPORTED (1923-1925 = 100.)

to make purchases abroad and the availability of such goods elsewhere. It will also depend upon whether the United States becomes involved in the war.

If the United States should enter the war, large scale purchases of war materials and supplies in this country would seem certain. Our government would itself become a large purchaser. Furthermore, it is probable that we would finance large purchases by our allies and that these purchases would be of United States produced goods.

As long as the United States does not become an active participant, the effect of the war upon our markets is likely to be primarily through the foreign demand for our goods. Consequently, the course of exports is one of the fundamental things to watch if we are to keep abreast of the prospects for inflation.

Thus far, the increase in our exports since the beginning of the war has been no more than the normal seasonal increase. This is indicated by Figure 1 which shows the monthly course of the United States Department of Commerce index of quantity of exports together with the same series adjusted for normal seasonal variation by the University of Illinois Department of Agricultural Economics.¹ It will be noted that for the entire period from 1935 to date there has been a

¹The index of seasonal variation is as follows: Jan. 99.9, Feb. 92.3, Mar. 100.8, Apr. 98.8, May 96.8, June 91.4, July 90.4, Aug. 92.5, Sept. 102.8, Oct. 116.1, Nov. 110.1, Dec. 108.2.

considerable upward trend of exports. A continuation of this trend would not indicate danger of inflation, but a more rapid increase would be significant.

Increased exports might not precede inflation—if it should occur—by as long a period as in the World War. A rapid and sustained increase in exports was a forerunner of the inflation during the World War. There was a decline in the value of exports during the first month of the war (August, 1914), but this was followed by a rapid increase which continued through 1915 and 1916. The average level of commodity prices, on the other hand, did not begin a sustained price until 1915. The increased exports of 1914-15 consisted largely of wheat and resulted from the combination of an unusually large wheat crop in the United States and an unusually small crop in Europe and Canada. Such increase in demand as

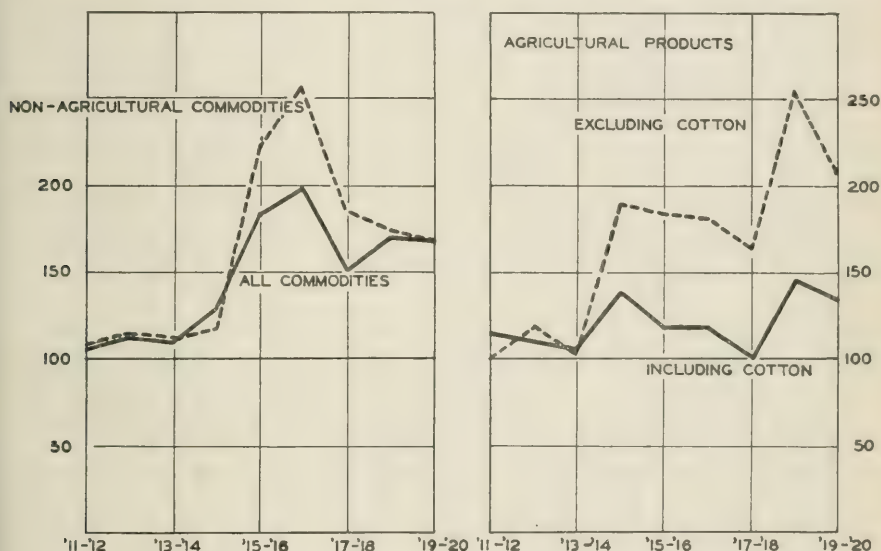


FIG. 2. INDEX NUMBERS OF UNITED STATES EXPORTS

there was from some quarters in the first year of the war was largely offset by decreased takings by Central Europe. The quantity of agricultural exports other than cotton almost doubled, as is shown by the right hand section of Figure 2. Cotton exports declined so drastically that total exports of all agricultural products increased only moderately. No corresponding indexes are available of the quantity of non-agricultural exports during the war period. However, if the value of non-agricultural exports of United States merchandise is adjusted for the changing purchasing power of the dollar, we obtain a rough indication of their changing quantity. These data are shown by the left hand section of Figure 2. It will be noted that there was no great increase in the quantity of non-agricultural products exported until the second year of the war. Apparently, inflation followed soon after the increase in non-agricultural exports.

It should not be assumed that the course of exports during the next two or three years will parallel those of the World War period. Rather, the movement of foreign purchases and exports should be watched as one indicator of whether and when inflation may occur.

In the case of most foodstuffs and raw materials, it seems likely that the United States will not be a very important source of supply. Indications are that

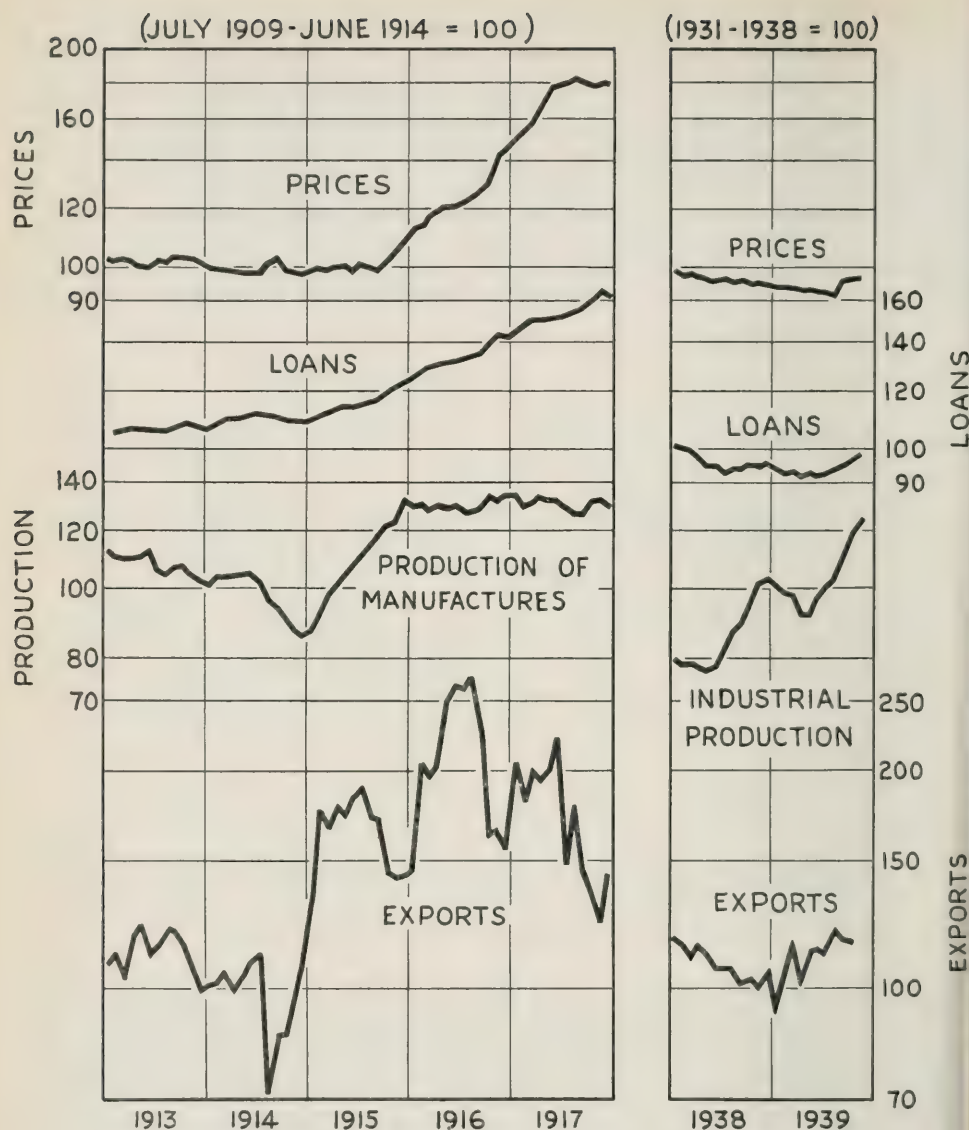


FIG. 3. WHOLESALE PRICES AND RELATED FACTORS

England and France will make every effort to conserve their supplies of foreign purchasing power. When they do make purchases, they will buy in the cheapest available markets—especially if they must buy on a “cash” basis—or in countries such as Rumania where their purchases will have a favorable political effect and tend to prevent foodstuffs and raw materials from being shipped to Germany. Or the whole, then, we may expect increased exports only of those products which are not available in sufficient supply elsewhere. Among foodstuffs, prospects for United States exports seem best for pork and pork products, but there has thus far been little increase in exports of these.

Prospects for exports of iron and of manufactured war machines and supplies are highly uncertain. Available business reports indicate that war orders made thus far have been confined mostly to airplanes, motor vehicles and machine tools, and that such purchases have not been very large. The relatively small amount of fighting which has thus far taken place in Europe suggests that war machines and ammunition are not being used up as rapidly as during the early months of the World War. If this character of the war should continue, it might be that the British and French can themselves supply most of the industrial products which they need. Any changes in the character of the war may be significant in causing changes in the amount of goods purchased in the United States.

Figure 3 shows the course of the price level and certain related factors in the United States for the years 1914 to 1917 and in 1938 and 1939. It should be noted that in the World War period wholesale prices did not make any sustained advance until the production of manufactures was approaching the high level which would appear to represent the approximate practical limit of manufacturing capacity of that time. As long as there was much unemployment, the tendency was to increase production rather than the prices of such products. A similar tendency exists today. It is uncertain, however, what level of industrial production represents the practical capacity of industry. Steel mills have been reported operating nearly at capacity during recent months, and there are some indications that for industrial production generally a level of about 130 to 140 percent of the 1923 to 1925 average¹ may be the present practical limit of our factories and mines. From a longer time standpoint, however, some further increase would presumably be possible because of the existing large amount of unemployment. Some idea of this situation and the probably maximum limits of production can be gained from Figure 4 which shows the volume of unemployment in relation to industrial production and the available supply of non-farm workers.

Although there still remains the tendency for an increase in the demand for most industrial products to result in increased production (when there is unused productive capacity) rather than increased prices, certain recent changes in this tendency should not be forgotten. The increasing strength of organized labor and the solicitude of government officials for the wishes of labor organizations has strengthened a tendency for wage rates to rise during periods of increasing business activity. This was especially evident in 1936 and early 1937. Such increases in wage rates are likely to be reflected in higher prices of many commodities. It is not likely that this combination of circumstances would in itself result in the type of price rise which is typical of war-time inflation, but it does necessitate the recognition that considerable price rise of industrial products might occur before employment has reached a maximum.

A large increase in exports even with industrial production at capacity would not necessarily result in inflation. If there should be a marked increase in exports, the way in which those exports were financed would be of vital importance. If they were paid for by a corresponding increase in goods (including services) imported there would be no reason to expect inflation. If they were not paid for by increased imports, they could be financed only by loans or by the sale of securities and gold in this country. Even then, inflation would not occur if the people of this country were to give up an equal amount of purchasing power when they make loans, purchase securities or buy gold from foreign countries. If, however, commodity purchases by foreign governments or foreign security issues bought by people in the United States should be financed in any large degree through borrowing from commercial banks, inflation is likely to follow as soon as industrial production reaches the limit of its practical capacity.

¹This would also be 130 to 140 on Figure 3 since the average level of the years 1936 to 1938 was 100.3 on the 1923-1925 base.

It is consequently important to watch the course of bank loans. This is shown by the next to the top line of Figure 3. In the left hand section, an index of total loans of national banks is shown for call dates. In the right hand section, the index is based on loans by all reporting member banks of the Federal Reserve System. These latter data are available weekly, but the chart shows only end-of-month figures.

During the World War, there was a rapid increase in bank loans and investments between the middle of 1915 and June 30, 1916. Some increase was of course to be expected accompanying the advancing level of business activity in 1915. However, the increase in bank credit was more rapid than normally accompanies such a rise in business activity; it continued after business activity

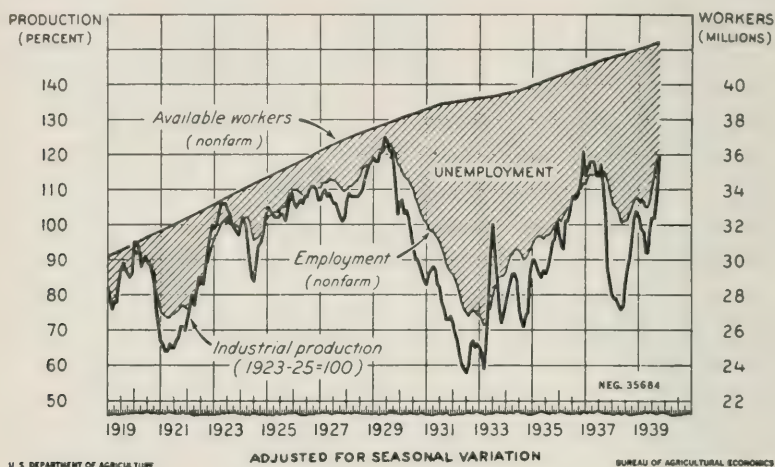


FIG. 4. INDUSTRIAL PRODUCTION, AND INDUSTRIAL EMPLOYMENT AND UNEMPLOYMENT, UNITED STATES, 1919-1939

reached a peak in early 1916. This continued rapid rise of bank credit is evidence that the war-time exports were being financed partly by the bank credit expansion.

Loans of reporting member banks averaged 8,837 million dollars in the years 1936 to 1938 and on December 2, 1939 they stood at 8,656 million dollars. The increase since early 1939 appears to be no more than is justified by the increasing level of business activity.

In appraising inflation prospects during the current war there are, consequently, three things which it is especially important to watch: (1) exports, (2) industrial production, and (3) bank loans and investments. A large sustained rise of exports is a danger signal. Bank credit may be expected to increase somewhat with increasing business activity. But if it continues upward while business activity, though maintained at a high level, is no longer rising, we have an almost certain sign that inflation is underway. If inflation does start, the extent of the price rise will depend in part on the urgency of the demand for goods relative to the amounts produced and the extent to which bank loans are permitted to expand. The attitude of lenders toward the safety of such loans as well as the use of credit controls of the Federal Reserve Board might play an important part in permitting or in limiting such a credit expansion.

E. J. WORKING

THE COST OF PRODUCING SOYBEANS

Costs per acre. That part of the cost of producing an acre of soybeans for grain that is represented by operating expenses has declined steadily from \$17.51 an acre in the five-year period 1922-1926 to \$8.84 an acre for the five years 1934-1938 in Champaign and Piatt Counties. By operating expenses is meant all cost of production except interest on investment in land. When land charges were added the costs were much higher. The group of approximately thirty farmers who furnished the cost figures on their soybean fields from which these average acre costs were derived had somewhat higher soybean yields and better managed farms than the average of all farmers in the two counties. In the early as well as the more recent period given above, the farmers keeping the cost records were on farms averaging approximately 260 acres, which meant that their farms were about eighty acres larger than the average sized farm in the area. The better-than-average farmers on these farms probably had somewhat lower soybean costs than many of their neighbors.

The drop in the operating expenses of producing soybeans can be chiefly attributed to an increased knowledge and use of improved methods discovered in growing and harvesting the crop during the expansion of the acreage of soybeans occurring since the early twenties. Growers have gradually improved seedbed preparation to more easily control weeds which formerly were not only impairing bean yields but made harvesting a time-consuming task. With improvements in cultural practices came the increased use of large tillage machinery, large power units, and the combine. The result, in spite of a marked increase in the yield of soybeans per acre, was a decided reduction in the labor required to grow and harvest an acre of the crop.

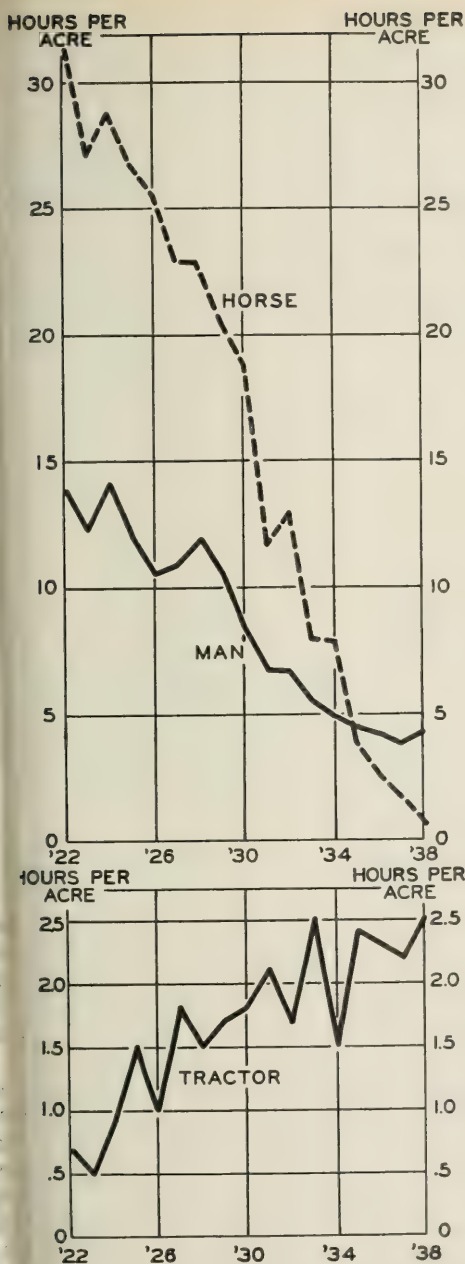


FIG. 1. CHANGES, BETWEEN 1922 AND 1938, IN THE HOURS OF MAN LABOR, HORSE LABOR, AND TRACTOR USE IN GROWING AND HARVESTING AN ACRE OF SOYBEANS IN CHAMPAIGN AND PIATT COUNTIES

TABLE 1.—THE COST OF PRODUCING SOYBEANS, CHAMPAIGN AND PIATT COUNTIES,
1922-1926 AND 1934-1938

	1922-1926 ^a	1934-1938	1934	1935	1936	1937	1938
Growing costs per acre							
Man labor.....	\$2.86	\$.60	\$.53	\$.58	\$.63	\$.62	\$.64
Power.....	7.91	1.71	1.65	1.79	1.78	1.62	1.69
Seed.....	2.43	2.31	2.12	1.89	1.85	4.09	1.61
Other expenses.....	2.38	.97	.81	.86	1.03	1.10	1.04
Total growing cost.....		\$5.59	\$5.11	\$5.12	\$5.29	\$7.43	\$4.98
Harvesting costs per acre							
Man labor.....		\$.30	\$.33	\$.29	\$.19	\$.30	\$.42
Combine.....		1.32	1.26	1.24	1.43	1.46	1.19
Power, truck, and machinery..		.42	.47	.37	.28	.37	.62
Total harvesting cost.....		\$2.04	\$2.06	\$1.90	\$1.90	\$2.13	\$2.23
Total growing and harvesting costs per acre.....	\$15.58	\$ 7.63	\$ 7.17	\$ 7.02	\$ 7.19	\$ 9.56	\$ 7.21
Land charges							
Taxes.....	1.93	1.21	1.12	1.19	1.16	1.27	1.34
Interest on land at 5 percent....	11.46	6.70	6.78	6.79	6.69	6.65	6.57
Total acre cost.....	\$28.97	\$15.54	\$15.07	\$15.00	\$15.04	\$17.48	\$15.12
Total income per acre.....	\$26.69	\$20.71	\$19.49	\$18.55	\$23.59	\$20.60	\$21.32
Net profit or loss per acre.....	-2.28	5.17	4.42	3.55	8.55	3.12	6.20
Yield per acre, bushels.....	16.6	27.3	26.3	28.5	23.6	25.6	32.6
Net cost per bushel ^b	\$1.48	\$.57	\$.571	\$.526	\$.637	\$.678	\$.460

^aNo attempt was made to separate harvesting from growing costs these years.

^bAfter allowing credit for straw and pasture.

Man labor required to produce soybeans for grain declined from 12.1 hours an acre during the five-year period ending in 1926 to 4.3 hours in the five-year period terminating in 1938. Horse labor during the same time declined from 27.9 hours to 3.2 hours an acre. In fact, in 1938 there was only 0.7 of an hour of horse labor used to produce an acre of beans on the farms studied that year. This reduction in horse hours together with the reduction in man labor was largely caused by the increase in the use of tractors from 0.9 of an hour per acre during the five years of 1922-1926 to 2.2 hours an acre in the period 1934-1938.

All of the bean fields included in the study in east central Illinois during 1937 and 1938 were harvested with the combine. This method of harvesting soybeans had been used for as much as 85 percent of the crop in 1933, after which year the practice was increased and included the whole crop by 1937.

Since 1933, the cost of preparing the seedbed and planting the soybean crop has changed but little. Except in 1937, when cleaned and inoculated seed beans were valued by the farmers cooperating in this study at approximately \$2.00 a bushel, the cost of growing soybeans until ready for combining was approximately \$5.00 an acre. The cost of harvesting the crop during this same period varied from \$1.79 an acre in 1933, when beans yielded 22.4 bushels an acre, to \$2.23 in 1938, when yields were nearly 33 bushels an acre. Where the combine was owned and operated by the operator of the farm on which the data were gathered, the cost of operating the machine was kept separate in the accounting from the cost of the labor of the operator and his hired help. Where the combining of beans was contracted to be done by an outside party, the total cost of this custom work was included in the item "combine" in the accompanying table.

Excluding 1937 when seed was high, the cost of growing and harvesting an acre of beans before making any charge for land or taxes was approximately \$7.00 an acre during the six years ending in 1938. In this period, the land charge was nearly \$1.00 greater than the growing and harvesting costs. The value of the bean crop in east central Illinois since 1934 has been sufficient to pay all costs of production, including 5 percent interest on land values, and to leave a profit to the grower in every year. Between 1922 and 1934, soybeans had not shown a profit for the grower except in 1923 and 1929.

Costs per bushel. The cost of producing a bushel of soybeans in east central Illinois during the five years 1922-1926 was \$1.48 for an average crop yield of 16.6 bushels per acre. The average bushel cost for the five years ending in 1938 was 57 cents for an average yield of 27.3 bushels per acre. The lowest cost per bushel, 46 cents, occurred in 1938. This low cost per bushel was obtained by growers through keeping their acre costs low, and through obtaining the highest bean yield of the seventeen years.

R. H. WILCOX

PREMIUMS FOR WHITE CORN

The current year has started out with a premium of 10.5 cents for No. 3 white corn over No. 3 yellow corn at Chicago. This compares with a premium of 1.1 cents a year earlier. Since the premium last crop year increased from 1 cent a bushel in November, 1938 to 11 cents in October, 1939 an equal advance in the current year would mean a premium of 21 cents at the close of the current season. Such an increase, however, is not at all likely.

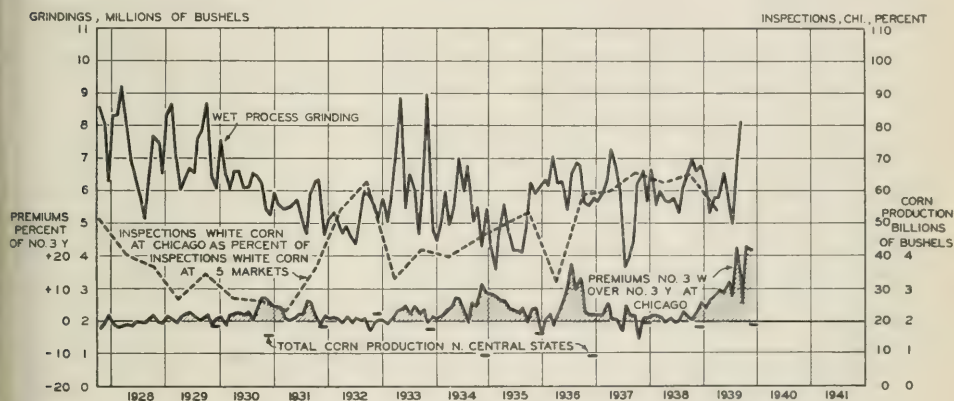


FIG. 1. PREMIUMS FOR WHITE CORN (AND RELATED FACTORS)

Illinois is one of the more important sources of white corn for commercial milling. We are interested not only in the current situation—whether the premium will be maintained throughout the coming months—but also in any clues that will help us to anticipate what the situation will be for the next crop year.

The premium, in the final analysis, depends upon the relationship between the demand for and supply of white corn relative to the demand for and supply of yellow corn at any given time and place. White corn is used for the production of white corn meal, hominy, breakfast foods, and in the brewing industry. Any surplus above requirements for industrial uses must be used for feed and compete directly with yellow corn. If a sufficient quantity of white corn is produced to more than satisfy the needs of processors of white corn there will be no premium and the same factors that determine the price of yellow corn will determine the price of white corn. One of these factors is the nutritive value of corn relative to other feedstuffs. In this respect yellow corn has some advantages over white corn and may sell at a higher price than white corn for use as feed. As a general rule, however, white and yellow corn will sell for about the same price in the Chicago market when white corn is so plentiful that part of it must compete directly with yellow corn as feed.

Supply of white corn is, therefore, a very important contributing factor. Unfortunately, we do not have data on white corn production for the United

States. We do have data on Illinois production for 1935, 1936, 1938 and 1939 and on the amount of white corn inspected at principal corn belt markets, but the data on inspections are of very little forecasting value. If white corn production remained a constant fraction of total corn production, our estimates of total corn production would give us an equally reliable estimate of white corn production. Prior to the greatly expanded use of hybrid yellow corn, a short crop of all corn in the states where much white corn is grown would suggest a short crop of white corn and a bumper crop of all corn would suggest that white corn probably would be available in quantities so large that no premium would be paid. For example, a substantial premium was paid for white corn at Chicago when total corn production was drastically reduced by weather conditions but no premium would ordinarily be paid if corn production were normal or above normal. (See Fig. 1). The year 1939 is the outstanding exception to this rule. As far as supply is the determining factor, white corn now makes up a smaller fraction than formerly of total corn production. (See Table 1). In the absence

TABLE 1.—ILLINOIS CORN PRODUCTION—YELLOW, WHITE, AND MIXED
AS PERCENT OF TOTAL PRODUCTION¹

	1935	1936	1938	1939
State				
Yellow.....	75.6	81.6	89.5	89.4
White.....	19.0	15.2	8.3	8.3
Other.....	5.4	3.2	2.2	2.3
White corn production by districts: (% of total)				
Northwest.....	8.5	8.2	3.9	3.0
Northeast.....	16.4	16.6	6.1	5.1
West.....	3.3	3.4	1.8	1.6
West Southwest.....	15.9	16.1	10.9	11.0
Central.....	8.5	8.6	3.6	3.7
East.....	18.0	19.0	9.0	8.2
East Southeast.....	26.1	25.2	16.1	17.3
Southwest.....	39.9	39.0	32.9	31.2
Southeast.....	30.8	30.9	28.7	27.6

¹Source, Illinois Cooperative Crop Reporting Service.

of a premium for white corn there was no particular inducement to plant white corn in the spring of 1938 but considerable pressure to plant yellow hybrids. In the spring of 1939 there was a substantial premium paid for white corn which might be expected to encourage some additional plantings of white corn. However, there was no change in the fraction of total corn harvested that was represented by white corn according to the results of the survey just completed by the Illinois Cooperative Crop Reporting Service and reported in Table 1. Any inducements offered by the premium last spring to plant white corn were offset by inducements to shift to yellow hybrids.

The demand for white corn varies with industrial activity and changes in the foreign situation. Data are not available concerning industrial utilization of white corn but if we let changes in wet process grindings of corn indicate changes in the quantity of white corn used by industry, considerable variation is apparent from year to year. (Fig. 1). When grindings increase during short crop years a substantial premium is paid for white corn. With a large crop, however, there may be so much white corn available that even with increased grinding there will be some white corn that will have to compete with yellow corn as feed. Under these circumstances no premium is possible. During 1939 the demand for white corn was well maintained and increased during the fall months. This increase in industrial uses would not have led to a significant premium, however, if the production of white corn had maintained its 1935-1936 relationship to the

production of all corn. It appears, therefore, that a limited supply of white corn was the principal contributing factor to the white corn premium in 1939.

Outlook for 1940. In the summer and fall of 1939 industrial buyers of white corn paid enough for white corn to bring or keep it from under seal in connection with the corn loan program. As the price of yellow corn at Chicago approached and reached the loan price in December, the price of white corn failed to rise an equal amount, and the premium declined somewhat. For the rest of the current crop year the extent of the premium for white corn will be determined by the extent to which the current good demand is maintained and by the quantity of white corn available for market. The demand depends upon the rate of industrial activity which is reflected in consumers incomes and upon the export outlet. Both the domestic and foreign demands have been maintained at a high level during recent months although there is evidence of a slowing down in some important industries. It would seem that the United States continues to be the cheapest source of corn products to many foreign countries, including Great Britain. Even though some industries may slow down during the next few months, if the war continues it is probable that the demand for white corn will be well maintained.

It seems that corn millers have been concerned about getting enough white corn to carry them through next summer and that they have no large stocks of white corn on hand. With the supply of white corn limited in the commercial white corn producing area of the corn belt in absolute amounts as well as relative to the supply of yellow corn a sustained demand for white corn products could very easily force the millers to pay a premium for white corn in the months ahead.

The extent of the premium existing during the early months of 1940—up to planting time—may tend to affect the acreage planted to white corn in 1940. This factor will be more important as we approach the saturation point in the use of yellow hybrids. Unless and until it becomes possible to obtain well-adapted commercial white corn hybrids, however, there would be a tendency to raise yellow hybrids unless a premium were paid for white corn. In some white corn producing areas of Illinois an increased interest is being shown in seed of white hybrids for 1940 planting. This increased interest in white corn may forecast lower premiums for the 1940 crop. Because of the inability to obtain a premium but with the possibility of obtaining a discount for white corn when production is in excess of industrial needs there has been little inducement to develop white hybrids on a commercial scale. Farmers may feel that their cost of production may be reduced enough by the use of the best yellow hybrids that it will take a premium to induce plantings adequate to provide for industrial needs during periods of prosperity and increasing business activity. G. L. JORDAN

Footnotes for the following page:

¹⁻¹²The first source is for annual data; the second is for current data from which tables may be brought up to date.

¹Survey of Current Business, 1936 supplement, U.S. Dept. of Commerce; subsequent monthly issues. Same as footnote 1. ²Illinois Crop and Livestock Statistics, Circular 438 (1937); monthly mimeographs of Statistical Tables for Illinois Crop Report, converted from 1910-14 = 100 to 1924-29 = 100 by multiplying by .7151. ³Agricultural Situation, Bureau of Agricultural Economics, U.S.D.A.; Agricultural Situation, converted from 1910-14 = 100 to 1924-29 = 100 by multiplying by .6486. ⁴Calculated from data furnished by Bureau of Agricultural Economics; Survey of Current Business, seasonally adjusted. ⁵Calculated by Department of Agricultural Economics, University of Illinois, seasonally adjusted. Data from Farm Income, Bureau of Agricultural Economics; B.A.E. monthly mimeograph. Receipts from Sale of Principal Farm Products (government payments not included). ⁶Obtained by dividing Index of Illinois Farm Income (column 6) by Index of Prices Paid by Farmers (column 4). ⁷Monthly Indexes of Non-Agricultural and National Income, Supplement, August, 1937, B.A.E.; Price and Demand Situation, or Agricultural Situation. ⁸Survey of Current Business, 1938 Revision; subsequent monthly issues, unadjusted for seasonal variation. ⁹Federal Reserve Bulletin of Federal Reserve Board, September, 1933 and subsequent issues; Survey of Current Business, seasonally adjusted. ¹⁰Preliminary estimate. ¹¹Illinois Crop and Livestock Statistics, Cir. 438; Monthly price releases, State Agricultural Statistician.

TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural income ⁸	Factory payrolls ⁹	Industrial production ¹
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. In money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period.....	1926	1926	1924-29	1924-29	1924-29	1924-29	1924-29	1924-29	1923-25	1923-25
1929.....	95	105	104	99	103	103	104	107	110	119
1930.....	86	88	89	94	83	87	93	100	89	96
1931.....	73	65	62	80	58	58	72	87	68	81
1932.....	65	48	41	69	43	43	62	68	47	64
1933.....	66	51	45	71	49	51	72	63	50	76
1934.....	75	65	61	80	57	55	69	72	64	79
1935.....	80	79	82	81	64	65	80	77	74	90
1936.....	81	81	86	80	75	82	102	90	86	105
1937.....	86	86	96	84	81	86	102	95	102	110
1938.....	79	69	69	80	70	81	101	88	78	86
Nov.....	78	68	66	78	70	90	116	90	84	103
Dec.....	77	68	66	78	68	80	103	90	87	104
1939 Jan.....	77	67	66	78	68	99	127	91	84	101
Feb.....	77	67	66	78	60	82	105	91	86	98
Mar.....	77	66	66	78	64	103	132	91	88	98
Apr.....	76	64	64	78	64	75	96	90	86	92
May.....	76	64	65	78	65	82	105	91	85	92
June.....	76	62	62	78	60	72	92	92	87	98
July.....	75	63	61	78	62	67	86	92	84	101
August.....	75	61	58	77	71	60	78	93	90	103
Sept.....	79	69	71	79	92	73	92	93 ¹¹	94	111
Oct.....	79	67	67	79	96	80	101	96	102	121
Nov.....	79 ¹¹	68 ¹¹	67 ¹¹	79	...	...	...	...	...	124 ¹¹

TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS¹²

Product	Calendar year average			Nov. 1938	Current months		
	1924-29	1937	1938		Sept.	Oct.	Nov.
Corn, bu.....	\$.81	\$.94	\$.45	\$.37	\$.51	\$.42	\$.42
Oats, bu.....	.42	.39	.24	.21	.31	.28	.31
Wheat, bu.....	1.30	1.10	.68	.56	.75	.74	.79
Barley, bu.....	.66	.84	.53	.41	.43	.44	.43
Soybeans, bu.....	1.94	1.20	.75	.60	.70	.70	.80
Hogs, cwt.....	9.97	10.11	8.06	7.40	7.40	6.70	6.10
Beef cattle, cwt.....	8.57	8.93	7.68	7.80	8.60	8.40	8.40
Lambs, cwt.....	12.22	9.58	7.76	7.80	8.40	8.30	8.20
Milk cows, head.....	78.00	61.00	60.00	62.00	61.00	62.00	62.00
Veal calves, cwt.....	11.27	9.43	8.89	9.10	9.50	9.60	9.50
Sheep, cwt.....	6.52	4.09	3.36	3.20	3.40	3.20	3.40
Butterfat, lb.....	.42	.32	.25	.24	.23	.25	.29
Milk, cwt.....	2.32	1.92	1.66	1.65	1.55	1.75	1.85
Eggs, doz.....	.30	.20	.19	.27	.16	.20	.24
Chickens, lb.....	.21	.16	.15	.13	.13	.12	.12
Wool, lb.....	.36	.32	.21	.22	.29	.33	.31
Apples, bu.....	1.59	1.18	.95	1.15	.70	.70	.75
Hay, ton.....	13.38	12.41	7.65	6.60	6.00	5.80	6.20
Potatoes, bu.....	1.39	1.12	.73	.60	.85	.80	.80

¹²For sources of data in tables see previous page.

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 Director, Extension Service in Agriculture and Home Economics, University of Illinois

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G. L. Jordan, Editor

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PROSPECTS FOR EXPORTS OF DAIRY PRODUCTS

The improvement in the domestic demand for dairy products since September 1, 1939, has resulted in substantial increases in prices for these products. Unless unforeseen developments occur in the present European situation, however, it is unlikely that there will be any marked increase in exports of dairy products from the United States during 1940. Consequently, if any significant changes occur in the prices of butter and other dairy products in 1940, they are likely to result primarily from changes in domestic demand.

Some of the factors which should be considered in analyzing this situation are summarized:

1. The United States exports of butter, cheese, and concentrated milk during the World War increased from .3 percent of the total production of manufactured dairy products in 1914 to a peak of 6.0 percent in 1919 (Table 1). Following the war, exports declined rapidly. In 1937 and 1938, only one-fifth of one percent of the production of these products was exported.

TABLE 1.—UNITED STATES EXPORTS OF DAIRY PRODUCTS, 1914-1919 AND 1937-1938¹

Year	Butter	Cheese	Concentrated milk	Percentage of total production of manufactured dairy products ²
	in thousands of pounds			
1914.....	3 688	2 428	16 209	0.3
1915.....	17 941	62 953	37 236	2.3
1916.....	26 561	14 093	159 578	2.7
1917.....	7 193	53 372	259 141	2.8
1918.....	26 194	48 405	551 140	5.6
1919.....	34 556	14 160	852 865	6.0
1937.....	800	1 156	30 846	0.2
1938.....	1 959	1 481	29 125	0.2

¹From annual reports of "Foreign Commerce and Navigation of the United States," United States Department of Commerce.

²Milk equivalent basis.

2. Wholesale prices of market milk, condensery milk, and butter were lower in 1915 than in 1914 even though exports of these products were higher (Table 2). The small increase in exports of manufactured dairy products from 1914 to 1915 was less than year-to-year changes in total milk production, and was not sufficient to raise the domestic prices of these products.

3. Large increases in capital made available to foreign countries from the United States was one of the principal factors making possible the marked increases in domestic prices in this country during the World War, particularly from 1917 to 1919 when governmental loans were at their peak (Table 2). Prices of dairy products increased during this period along with the increase in the general level of prices.

4. Exports of concentrated milk increased from 16 million pounds in 1914 to 353 million pounds in 1919 (Fig. 1)—the greatest increase of any of the dairy products exported. Foreign buyers of concentrated milk were forced to pay

TABLE 2.—WHOLESALE PRICES OF MARKET MILK, CONDENSERY MILK, AND BUTTER IN THE CHICAGO DAIRY DISTRICT, AND CAPITAL AVAILABLE TO FOREIGN COUNTRIES FROM THE UNITED STATES, 1914 TO 1921

Year	Prices paid producers in the Chicago area ¹		Price of Chicago 92-score butter	Capital available to foreign countries from the United States ²		
	Market milk	At condenseries		Securities sold and private loans	Government loans	Total amount of capital
	per 100 lbs. of 3.5 percent milk		cents per lb.		millions	
1914.....	\$1.60	\$1.58	26	\$ 410	.....	\$ 410
1915.....	1.58	1.55	25	1,794	.....	1,794
1916.....	1.72	1.72	32	1,800	.....	1,800
1917.....	2.37	2.43	40	300	\$2,717	3,017
1918.....	2.87	2.87	50	150	2,877	3,027
1919.....	3.25	3.25	58	515	1,781	2,296
1920.....	3.17	2.94	42	571	240	811
1921.....	2.09	1.87	39	303	86	389

¹From Ill. Exp. Sta. Bul. 269, 1925, pp. 536 and 538.

²For 1914-1918, from Review of Economic Statistics, No. 3, July 1919. Pp. 240-248. For 1919-1921, from Fetter, F. W., International Balance of Payments of the United States, Foreign Policy Report, May, 1936.

farmers high prices in order to get the quantity of milk needed. Likewise, they were forced to pay processors high returns on their capital to encourage them to build enough condenseries to manufacture the quantity of product needed.

5. The capacity of condenseries in the United States has been increasing in recent years. In 1938, the production of condensed and evaporated milk in this country was over three times that of 1914 and over three times the volume exported in the peak year of 1919 (Fig. 1). In contrast, the total production of concentrated milk in 1914 was less than three-fourths of the volume exported in 1919. This indicates the marked expansion in this industry, particularly from 1915 to 1919.

6. During the past 23 years, there has been a marked increase in the production of creamery butter in Canada. From 84 million pounds in 1915, this increased

MILLIONS OF POUNDS

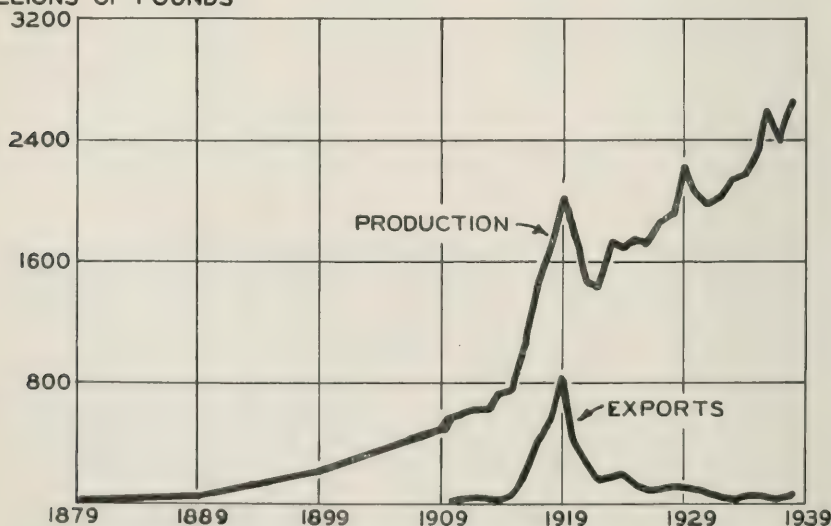


FIG. 1. PRODUCTION AND EXPORTS OF EVAPORATED AND CONDENSED MILK IN THE UNITED STATES, 1879-1938

to 92 million pounds in 1919, and 372 million pounds in 1938. The 1938 production of Canadian creamery butter was 11 times the volume of butter exported from the United States in 1919.

7. When the domestic demand for butter is strong, usually its price is higher than for Canadian butter. Thus, from September to November, 1939, weekly quotations of the price of 92-score butter in New York averaged 28.6 cents per pound, compared with 23.9 cents for Number 1 quotations of butter in Montreal, or a net difference of 4.7 cents per pound.

An analysis of the present situation indicates that marked increases in prices of dairy products resulting from exports during 1940 are unlikely. In the first place, as compared with the World War, there is a scarcity of both money and credit in England and France. Consequently, purchases from these countries are likely to be limited to absolute essentials. During the World War these countries were the largest buyers of our dairy exports.

Second, because of their relative cheapness and convenience, England is likely to increase its purchases of dairy products from Canada, New Zealand, or Australia, before tapping other sources. As compared with the World War, Canada is far better equipped to furnish substantial volumes of these products. Also, under present conditions of exchange, a saving of at least 12 percent can be made by buying from those whose money standard is based upon the English pound rather than the American dollar.

Third, with our present production capacity, a small volume of concentrated milk and other dairy products could be exported without materially affecting the prices of these products.

R. W. BARTLETT

PROSPECTS FOR EXPORTS OF GRAIN AND LIVESTOCK PRODUCTS

Exports of grain and livestock products will likely prove disappointing in 1940. Many people, remembering 1916-1919, when high prices prevailed during and after the World War, thought that a great wave of exports would set in after the outbreak of the current war last September. So far these anticipations have not been realized. The warring nations had accumulated considerable stocks of certain items (fats), have forced curtailments in consumption of more expensive food stuffs, such as butter and bacon, and have fixed prices on certain items which are not attractive to American exporters. Certain products like cattle and wheat have been obtainable more cheaply in other countries than the United States; the former in Argentina; the latter in Argentina and Canada. Also, live-stock feeding in England has been curtailed. Wars make people poor and they buy the cheaper kinds of foods.

For the near future the following trends appear likely: (1) Little increase in exports of pork to Europe, the increase reflecting our high production rather than war demand; (2) Some exports of light weight hog carcasses to Canada to replace increased exports from that country to Great Britain; (3) Moderate increases in exports of lard because of huge supplies here; (4) Little or no export of wheat because of high prices here and the reduction in supplies caused by the drouth in the southwest; (5) Continued increase in interest in American soybeans on the part of European buyers on account of the remoteness of Manchurian beans; (6) Some exports of corn and of corn products to Europe because of short supplies of corn in Argentina and the cheapness of corn products as a source of food; (7) Possibility of increased exports of feed grains to Canada to provide feed for hogs in connection with exports of pork from Canada.

The emphasis here is on grains (corn and soybeans), because of special circumstances and of cheapness. Export of grain would be larger if not hampered by shortage of ships. Removal of American ships from the North Atlantic trade and the delays caused by convoys apparently have created a shortage of shipping.

Later on, if the war continues, the reduction in accumulation of storage stocks, the possibility of crop failures somewhere, and difficulties of shipping from a more remote country like Argentina may cause purchases to be increased here. If the war proves to be long, exports after the war are likely to be larger, just as they were after 1918, to provide food to restore semi-famished people, particularly if at that time this country should be liberal with relief or should make some rehabilitation loans.

L. J. NORTON

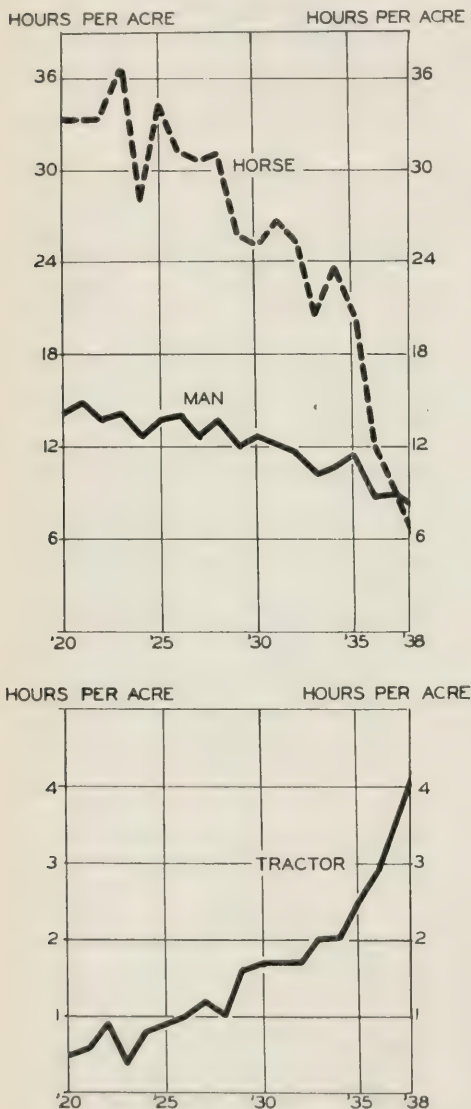


FIG. 1. CHANGES, BETWEEN 1920 AND 1938, IN THE HOURS OF MAN LABOR, HORSE LABOR, AND TRACTOR USE IN GROWING AND HARVESTING AN ACRE OF CORN, HUSKED FROM THE STANDING STALK, IN CHAMPAIGN AND PIATT COUNTIES

THE COST OF PRODUCING CORN

Costs per acre. Figures on the cost of producing corn have been kept each year since 1913 by a selected group of Illinois farmers cooperating with the University in a study of the cost of producing farm products. The early study in the northern two-thirds—or the corn-belt portion—of the state was with farmers in Hancock County, continuing from 1913 through 1922. In 1920, the work was expanded to include a group of farmers in Champaign and Piatt Counties, where it has been carried on continuously to date. The operating expenses in the cost of producing corn, which include all costs other than interest on the value of land, averaged \$11.61 an acre in Hancock County during the three-year period 1913-1915. In Champaign and Piatt Counties in the first five years of the study in that area, 1920-1924, the operating expenses per acre were \$17.16, from which point they declined irregularly to \$10.83 in the five-year period 1934-1938. When land charges were added, the total costs per acre were much higher.

The group of farmers cooperating in the cost study had somewhat higher corn yields than average for their county and their farms were approximately 80 acres larger than the average of their neighbors. As a result of these factors and also because the farms of the cooperators were better managed than most farms in their locality, the costs of producing corn were no doubt lower on these selected farms than on all farms.

The operating expenses in producing corn in Hancock County from 1913 to 1922 were, of course, influenced by the increases in wages, in the prices of feeds fed to horses used in producing

the corn crop, and in other expenses during the war period. Taxes, however, rose very little on the farms during the war, but made their most appreciable rise after 1918. By 1922, land taxes for the cooperating Hancock County farms had reached 2.6 times their 1913 level. Tractors did not come into use on these farms until 1916 and did not exert much influence on the amount of horse labor used in corn production until the late twenties. The rapid adoption of the general-purpose tractor from then on further reduced need for horses by substituting mechanical power in their place. By 1933, the mechanical corn picker had begun to establish itself in Champaign and Piatt Counties, and by 1938, 81.7 percent of the corn acreage on the farms in the study was husked with the mechanical corn picker.

The number of man hours used in growing and harvesting an acre of corn from the standing stalk in Champaign and Piatt Counties declined from an average of 14.4 in the three years 1920-1922, to 8.2 in the three years 1936-1938. Horse labor between the same two periods declined from an average of 33.4 hours an acre to 9.3 hours, dropping as low as 6.4 hours an acre in 1938. At the same time in this post-war period, large-sized and more adaptable power units were increasing in use in corn production, and found their place on these corn-belt farms. They were used as power for large cultivator units and mechanical corn pickers as well as for ground preparation. The use of tractors in producing an acre of corn increased from slightly less than 0.7 of an hour an acre in the period 1920-1922, to 3.6 hours in the period 1936-1938. All of the farms under study in the recent three-year period used tractors to cultivate corn.

From 1920 to 1930 in Champaign and Piatt Counties, the cost of preparing the seedbed, planting the crop, and all other expenses connected with growing the corn crop to the time of harvest, fluctuated from year to year between a low of \$9.55 to a high of \$11.34 an acre. Total costs, including harvesting costs and land charges, started to decline in 1931 until the cost of producing an acre of corn reached its low figure for the 19 years of study in Champaign and Piatt

TABLE 1.—THE COST OF PRODUCING CORN, CHAMPAIGN AND PIATT COUNTIES, 1920-1924 AND 1934-1938

	1920- 1924*	1934- 1938	1934	1935	1936	1937	1938
Growing costs per acre:							
Man labor.....	\$4.60	\$1.12	\$1.19	\$1.16	\$1.05	\$1.06	\$1.11
Power.....	7.17	2.25	2.51	2.28	2.23	2.17	2.07
Seed.....	.37	.63	.21	.39	.93	.75	.87
Manure and fertilizer.....	.32	.86	.78	.85	1.03	.88	.76
Other expenses.....	2.79	2.04	2.01	2.01	1.93	2.17	2.08
Total growing cost.....		\$6.90	\$6.70	\$6.69	\$7.17	\$7.03	\$6.89
Harvesting costs per acre:							
Man labor.....		\$1.26	\$.74	\$1.96	\$1.27	\$1.40	\$.91
Power and truck.....		1.11	.77	1.21	1.18	1.29	1.12
Mechanical picker.....		.33	.07	.10	.20	.50	.79
Total harvesting cost.....		\$2.70	\$1.58	\$3.27	\$2.65	\$3.19	\$2.82
Total growing and harvesting costs per acre	\$15.25	\$ 9.60	\$ 8.28	\$ 9.96	\$ 9.82	\$10.22	\$ 9.71
Land charges							
Taxes.....	1.91	1.23	1.15	1.18	1.17	1.32	1.34
Interest on land at 5 percent.....	12.70	6.66	6.84	6.82	6.49	6.65	6.48
Total acre cost.....	\$29.86	\$17.49	\$16.27	\$17.96	\$17.48	\$18.19	\$17.53
Total income per acre.....	\$28.63	\$26.60	\$19.47	\$26.65	\$30.77	\$31.13	\$24.97
Net profit or loss per acre.....	\$-1.23	\$ 9.11	\$ 3.20	\$ 8.69	\$13.29	\$12.94	\$ 7.44
Yield per acre, bushels.....	47.8	47.6	26.5	58.1	31.6	60.8	61.2
Net cost per bushel ^b	\$.604	\$.356	\$.598	\$.300	\$.532	\$.299	\$.279

*No attempt was made to separate harvesting from growing costs these years.

^bAfter allowing credit for stalk pasture.

Counties in 1933. The acre cost that year was \$15.48 for a crop of 36.3 bushels an acre. From this low point, the acre cost increased irregularly, reaching \$18.19 in 1937 for a crop of 60.8 bushels an acre.

Costs per bushel. Over a long period of time, the cost of producing a bushel of corn is largely determined by changes that occur in acre costs. In the five-year period 1920-1924, for which figures are shown in the accompanying table, the net cost per bushel, leaving out interest on land values and giving credit for stalk pasture, was 33.8 cents. When interest on land values is included, the net cost per bushel for this early period was 60.4 cents. In the five-year period, 1934-1938, the net bushel cost without interest on land value and after giving credit for stalk pasture averaged 21.6 cents. When interest on land values is included, the net cost per bushel in this later period was 35.6 cents. The lowest cost per bushel occurred in 1938 when the net cost per bushel was 27.6 cents. This low cost was nearly equalled in 1932 when the net cost per bushel on the cooperating farms in Champaign and Piatt Counties was 28.0 cents. The corn yield was 61.2 bushels in 1938 and 57.4 bushels in 1932. Hence the low cost of producing corn in recent years reflects in part the larger yields.

R. H. WILCOX

ILLINOIS LAND RATINGS AS AN AID IN LAND ASSESSMENT

Farm land ratings, based on findings of the University of Illinois Agricultural Experiment Station, which have long been recognized as helpful to persons concerned with valuing individual farms, received more attention in the past 10 months than before for their helpfulness in equalizing tax assessments. From the annual meeting of local assessment officials which the Illinois Tax Commission held in Springfield last March, from other gatherings of officials in the districts of the state, and from the Tax Commission's revised assessor's manual came an impetus to use the land ratings in their present provisional form in the work of assessment and equalization. While the extent of use has not been uniform in all counties, it has been such as to indicate expanded interest in recently available materials for valuing farm real estate more accurately.

Based on the work of specialists in the Illinois soil survey now in its thirty-eighth year, blocked-area land ratings were prepared for 25 selected counties. In this latest effort to make more easily understandable the economic meaning of the differences in soils as distinguished in agronomic studies, blocks of 40 acres were generally used. Between 7,000 and 7,500 of these blocks were given ratings in an average county. Each block was rated on a scale of 1 to 10, the most productive soil being 1 and the least productive 10. By using the numerical rating that applied to soils most dominant in the 40 acres, a simple whole number expressing an approximate rating for the entire 40 acres was obtained. Workers for determining these block-acre ratings were furnished under a WPA project sponsored by the Illinois Tax Commission with advisory assistance of the Department of Agricultural Economics, and the Department of Agronomy of the Agricultural Experiment Station.

Among limitations of soil maps and rating maps when used for assessment purposes, are six as follows: (1) The rating figures are presented only as indicators of relative producing capacity, not as expressions of money value. (2) The rating figure for a given soil is the average for that soil wherever it occurs in the state, but applies only to that soil where it is unlimed and unfertilized and farmed in the manner common to the region, results of work now in progress having to be completed before it will be possible to construct a producing capacity rating of Illinois soils on an assumption of soil improvement. (3) Rating figures do not take into account the present cover, that is to say, timber, brush, or any other kind of vegetation. (4) Producing capacity of soil types varies between certain limits. Dangers associated with using a single average rating figure can

be avoided if the user appreciates the fact that it is an average and is willing to exercise his judgment and to consider that this means that the particular rating may lie anywhere within certain limits above or below the figure given. (5) Among the 75 Illinois counties for which soil maps have been published, there are 25 in which these maps are sufficiently detailed to be used directly as rating maps or as the basis for the construction of blocked-area rating maps. These include, in the northern third of the State, Boone, Ford, Fulton, Marshall, Putnam, Warren Counties; in the central third, Piatt, Schuyler, Vermilion; and in the southern third, Alexander, Calhoun, Clinton, Cumberland, Effingham, Fayette, Jasper, Jackson, Pulaski, St. Clair, Shelby, Wabash, Washington, and Wayne. (6) Where 40 acre blocks are rated, the rating assigned to a 40 acre block should not be taken as an indication of uniformity for all the land in that block, but as an indication of the producing capacity of the bulk of the land in that block. Local assessors can use aerial maps in county agricultural conservation offices to distinguish the present use of the land, whether tilled, in timber, or in permanent pasture, and possibly the degree of erosion.

Factors other than soil factors which influence money value, not allowed for in the land ratings, need also to be taken into account. First among these is the land cover. The appraiser or assessor of the land must take into account whether or not the land is tillable, and whether it may be in permanent pasture. Another factor is location. A location with respect to roads to market is an important non-soil factor in some regions.

Community conditions constitute a third group of factors. Availability of schools, churches, and other public institutions influence the value of land.

In one community, there may be higher demand for land from some bidders who seek to make sure that their children may remain within the home community. In one school district or drainage district, all debts incurred by the district may be paid, while in others, a long period of bonded indebtedness may be getting under way. Farms located near one population center may have an advantage in securing help for either farm or household on more favorable terms than those near a different center. One farm may be laid out for economical farming, while another may consist of scattered tracts of land varying in degree of difficulty and expensiveness of operation from one point. In productive capacity, these farms may differ less than their market values as salable properties. Where land makes up 75 percent of the value of all farm real estate, as in Illinois, it is obvious that neither the soil side nor the non-soil side should be neglected in arriving at sound assessments.

C. L. STEWART

Footnotes for the following page:

¹⁻¹²The first source is for annual data; the second is for current data from which tables may be brought to date.

¹Survey of Current Business, 1936 supplement, U.S. Dept. of Commerce; subsequent monthly issues. ²Same as footnote 1. ³Illinois Crop and Livestock Statistics, Circular 438 (1937); monthly mimeographs of Statistical Tables for Illinois Crop Report, converted from 1910-14 = 100 to 1924-29 = 100 by multiplying by .7151. ⁴Agricultural Situation, Bureau of Agricultural Economics, U.S.D.A.; Agricultural Situation, converted from 1910-14 = 100 to 1924-29 = 100 by multiplying by .6486. ⁵Calculated from data furnished by Bureau of Agricultural Economics; Survey of Current Business, seasonally adjusted. ⁶Calculated by Department of Agricultural Economics, University of Illinois, seasonally adjusted. Data from Farm Income, Bureau of Agricultural Economics; B.A.E. monthly mimeograph. Receipts from Sale of Principal Farm Products (government payments not included). ⁷Obtained by dividing Index of Illinois Farm Income (column 6) by Index of Prices Paid by Farmers (column 4). ⁸Monthly Indexes of Non-Agricultural and National Income, Supplement, August, 1937. B.A.E.; Price and Demand Situation, or Agricultural Situation. ⁹Survey of Current Business, 1938 Revision; subsequent monthly issues, unadjusted for seasonal variation. ¹⁰Federal Reserve Bulletin of Federal Reserve Board, September, 1933 and subsequent issues; Survey of Current Business, seasonally adjusted. ¹¹Preliminary estimate. ¹²Illinois Crop and Livestock Statistics, Cir. 438; Monthly price releases, State Agricultural Statistician.

TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural income ⁸	Factory payrolls ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. In money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period	1926	1926	1924-29	1924-29	1924-29	1924-29	1924-29	1924-29	1923-25	1923-25
1929	95	105	104	99	103	103	104	107	110	119
1930	86	88	89	94	83	87	93	100	89	96
1931	73	65	62	80	58	58	72	87	68	81
1932	65	48	41	69	43	43	62	68	47	64
1933	66	51	45	71	49	51	72	63	50	76
1934	75	65	61	80	57	55	69	72	64	79
1935	80	79	82	81	64	65	80	77	74	90
1936	81	81	86	80	75	82	102	90	86	105
1937	86	86	96	84	81	86	102	95	102	110
1938	79	69	69	80	70	81	101	88	78	86
Nov.	78	68	66	78	70	90	116	90	84	103
Dec.	77	68	66	78	68	80	103	90	87	104
1939 Jan.	77	67	66	78	68	99	127	91	84	101
Feb.	77	67	66	78	60	82	105	91	86	98
Mar.	77	66	66	78	64	103	132	91	88	98
Apr.	76	64	64	78	64	75	96	90	86	92
May.	76	64	65	78	65	82	105	91	85	92
June.	76	62	62	78	60	72	92	92	87	98
July.	75	63	61	78	62	67	86	92	84	101
August.	75	61	58	77	71	60	78	93	90	103
Sept.	79	69	71	79	92	73	92	93	94	111
Oct.	79	67	67	79	96	80	101	95	102	121
Nov.	79	67	67	79	78	...	...	96	102	124 ¹¹

TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS¹²

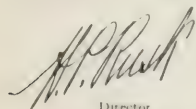
Product	Calendar year average			Dec. 1938	Current months		
	1924-29	1937	1938		Oct.	Nov.	Dec.
Corn, bu.....	\$.81	\$.94	\$.45	\$.42	\$.42	\$.42	\$.47
Oats, bu.....	.42	.39	.24	.24	.28	.31	.35
Wheat, bu.....	1.30	1.10	.68	.57	.74	.79	.88
Barley, bu.....	.66	.84	.53	.39	.44	.43	.44
Soybeans, bu.....	1.94	1.20	.75	.65	.70	.80	.95
Hogs, cwt.....	9.97	10.11	8.06	7.00	6.70	6.10	5.10
Beef cattle, cwt.....	8.57	8.93	7.68	7.70	8.40	8.40	8.30
Lambs, cwt.....	12.22	9.58	7.76	8.10	8.30	8.20	8.20
Milk cows, head.....	78.00	61.00	60.00	61.00	62.00	62.00	65.00
Veal calves, cwt.....	11.27	9.43	8.89	8.60	9.60	9.50	9.10
Sheep, cwt.....	6.52	4.09	3.36	3.45	3.20	3.40	3.60
Butterfat, lb.....	.42	.32	.25	.26	.25	.29	.26
Milk, cwt.....	2.32	1.92	1.66	1.70	1.75	1.85	1.80
Eggs, doz.....	.30	.20	.19	.25	.20	.24	.19
Chickens, lb.....	.21	.16	.15	.13	.12	.12	.11
Wool, lb.....	.36	.32	.21	.23	.33	.31	.31
Apples, bu.....	1.59	1.18	.95	1.30	.70	.75	.95
Hay, ton.....	13.38	12.41	7.65	6.20	5.80	6.20	6.50
Potatoes, bu.....	1.39	1.12	.73	.70	.80	.80	.80

¹⁻¹²For sources of data in tables see previous page.

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 Director, Extension Service in Agriculture and Home Economics, University of Illinois

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ILLINOIS FARM ECONOMICS

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G. L. Jordan, Editor

February, 1940

Number 57

THIS WAR AND THE FARMER

Farmers in the United States may gain or lose as the result of the present war, depending upon future developments with regard to the intensity and area of war activities; the adoption of policies and procedures that lead to price inflation, and policies and procedures adopted by individual farmers in response to current developments.

If Inflation Comes. The causes and prospects for inflation in the United States were discussed in the November and December issues of Illinois Farm Economics. If inflation is prevented, there is less need to worry about post-war adjustments. If inflation comes, however, a clear understanding of probable results should help reduce the destructive influence of a serious post-war collapse. If we have inflation, prices of all goods and services will tend to rise relative to what their price would be under similar circumstances except for inflation. There is great difference, however, in the extent to which individual commodities rise in price during inflation.

The extent of the rise in price of any product will depend upon the extent to which the increased income is spent for that particular product and the extent to which the supply of the product is increased.

Unless the impact of the new demand coincides in point of time with a very high rate of industrial activity, there will be a tendency for industrial output to increase promptly in response to an increased demand. On the other hand, changes in the quantity of production of agricultural products are largely the result of weather conditions and the quantity does not increase promptly in response to an increase in demand. Ordinarily, therefore, the prices of agricultural products are likely to respond more promptly to an increase in demand than are the prices of manufactured goods.

Prices of agricultural products would rise more promptly and rapidly if the demand of other nations were for foodstuffs and the United States occupied an advantageous position in supplying these foodstuffs. The United States, however, seems to occupy a more favorable competitive position in connection with non-agricultural products than in connection with foods and feeds at the present time.

Changes in the incomes of farmers and other occupational groups probably would differ widely as they did during the World War although not necessarily in the same direction or to the same extent. The purchasing power of the entire realized income drawn by individuals from agriculture was greater than for any other industry in 1915, relative to 1913. (See Fig. 1). By 1916 purchasing power of income received by individuals from manufacturing exceeded that drawn by individuals from agriculture. Manufacturing maintained its lead in 1917, but in 1918 and 1919 agriculture again led all of the other six industries. Between 1913 and 1918 the purchasing power of the entire realized income drawn by individuals increased slightly for mercantile and transportation groups, increased substantially for mines, quarries, and oil wells, increased 30-35% for manufacturing and agriculture, but declined drastically for banking and construction. Even though the impact of the war demands is felt most strongly in the manufacturing industry, any great increase in industrial activity will lead to increased payrolls and increased demand for farm products.

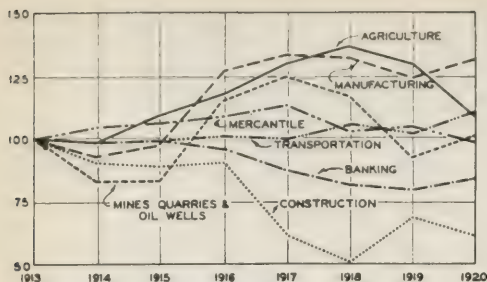


FIG. 1. PURCHASING POWER INDEX OF REALIZED INCOME DRAWN BY INDIVIDUALS FROM VARIOUS INDUSTRIES, 1913=100

There is usually great diversity in the behavior of prices of individual products and groups of products during periods of mounting inflation or deflation. The World War period is an excellent example of such diversity. Considering corn, wheat, hogs, cattle, and milk, and using 1913 prices as a base or 100 percent, by 1915 wheat had advanced more than any other commodity in this group. Corn was second, but the price of cattle had risen only slightly and the prices of hogs and milk were below the 1913 level. However, by 1917 the price of corn advanced to 261.9% of the 1913 price; wheat was about 205%; hogs, 185%; cattle, 150%; and milk, 137% of the 1913 prices. Between 1917 and 1918 the price of corn and wheat receded slightly, but the prices of hogs, cattle, and milk continued to increase. (See Fig. 2).

The prosperity of farmers depends not only upon prices received for farm products but also upon prices paid for goods and services used on the farm. The ratio of prices received to prices paid by farmers showed no appreciable increase during the World War period until 1917. In 1917, however, the prices of agricultural products rose so fast relative to the prices of products farmers purchased that the ratio of prices received to prices paid by Illinois farmers reached 125% of the 1910-1914 base. The ratio of prices received to prices paid declined somewhat in 1918, but was still approximately 15% above the 1910-1914 level.

From Windfall to Downfall. The farm family has several alternative uses for the increased income resulting from war-induced inflation. The money may be used to bid for more land. This is a logical procedure inasmuch as the land has been instrumental in providing the increased income. Or the family may prefer to pay off debts, improve the buildings install running water, a furnace, electricity, buy some new furniture, improve the fertility of the farm, buy

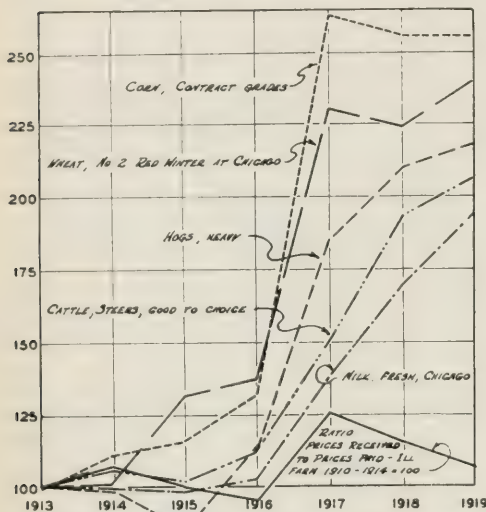


FIG. 2. PRICE BEHAVIOR OF SELECTED FARM PRODUCTS, 1913-1919. (1913=100)

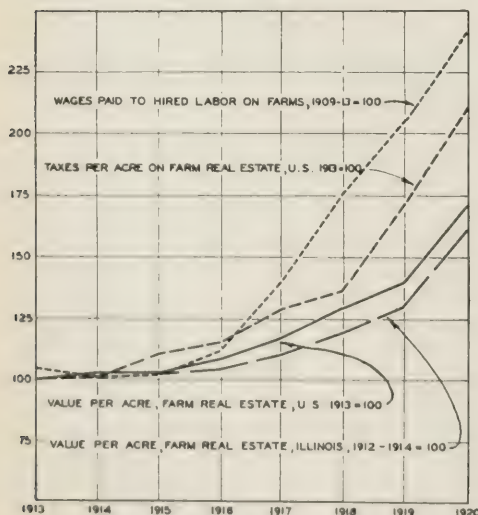


FIG. 3 FARM REAL ESTATE TAXES, FARM WAGES, AND FARM LAND VALUES, U. S., 1913-1920

some high grade securities, or save cash for later use. There is a very great temptation to bid up the price of farm land. This happened during the World War and immediate post-war periods. As a result of improved prices of farm products and agricultural prosperity of previous years, land values rose slightly in 1914. (See Fig. 3). This level was maintained in 1915, and the rapid increase which began in 1916 was accelerated through 1920. Farm real estate values in Illinois followed the same pattern, but did not increase to quite the same extent as for the United States. Relative to 1913, taxes rose more in 1915 than did land values, and maintained their lead until in 1920 taxes per acre on farm real estate in the United States were 209% of the 1913 base. Wages paid to hired labor on farms also rose substantially in 1916 and continued to rise at a rapid rate until by 1920 they were 241% of the 1913 level. By 1920 farm mortgages were 218% of the 1910 level. In addition to this, farmers' personal and collateral loans from commercial banks rose from 1.6 billion dollars in 1914 to 2.5 billion dollars in 1918. This was a rise of 55%. Land values, taxes, and indebtedness apparently had been built up on the assumption that prices of farm products and agricultural prosperity would be maintained at the high level of the late war years.

Post-War Collapse. The behavior of agricultural prices in inflation is reversed in times of deflation. The inflation resulted in agricultural prosperity for a few years; the deflation resulted in agricultural depression for many years. To the extent that farmers bid up the price of land and increased their indebtedness, they were unable to retain their land holdings at the bottom of the depression. It did not take long to discover that debts which seemed reasonable when wheat was \$2.00 to \$2.50 a bushel and corn was \$1.50 to \$2.00 a bushel were exceedingly heavy burdens with wheat at 80¢ and corn at 40¢ a bushel. Many farmers lost in the depression following the war-time inflation not only all their war-time gains, but also all their prewar savings.

Only a few farmers profited from war-time inflation. They were the ones who resisted the urge to buy more land and paid off their debts or if they bought land they paid cash for it out of the large earnings during this period. Farmers have little opportunity to follow any occupation other than farming and very few landowners are satisfied to sell their property when land values are high and continue farming as tenants until values decline again. If inflation comes again, a wise policy would seem to be to pay off indebtedness and to refrain from buying land unless it is paid for in full from cash holdings.

G. L. JORDAN

INTENSIVE VERSUS EXTENSIVE FARMING AS A MEANS OF INCREASING FARM EARNINGS

"I need more income. Shall I extend my business by buying or renting more land, or shall I intensify my business on the present farm?" These questions are asked by many corn-belt farmers who desire larger incomes.

Some answers to these questions are to be found in studies of several thousands of farm account records kept by Illinois farmers during the past twenty-five years. This discussion is based largely on records kept in North Central Illinois during the past fifteen years in the project known as the Farm Bureau Farm Management Service.¹ The answers given here are not final, but may prove helpful to some who are considering the questions.

There are several ways of intensifying the farm business. Incomes on some very small farms have been increased by growing small fruits and vegetables and

¹The Farm Bureau Farm Management Service is a project conducted by several county farm bureaus in adjoining counties cooperating with the Department of Agricultural Economics of the University of Illinois. Fieldmen spend all of their time with a few more than two hundred farmers each, helping them with their records and consulting with them regarding their management problems. Most of the cost of the service is paid from fees collected from the cooperating farmers.

flowers. This form of intensification requires a high degree of skill in order to produce a marketable quality of product and then to market it. It usually throws one into competition with established commercial growers. It is satisfactory for a few, but cannot be applied by many.

The production of high-quality field seeds has enabled a goodly number of grain farmers to make more complete use of available labor and to increase incomes as much or more than to increase the acreage of ordinary grain crops. This, too, involves a high degree of skill, and the number for which this offers an opportunity is limited.

The production of registered livestock to be sold for breeding purposes has long been a rather popular method of intensifying the farm business. While there are a few record-keeping farms on which incomes have been increased successfully by this method, there are many others where high feed costs, high selling expenses, much time spent and other risks, have absorbed more than the price advantage has added. While many who have attempted this plan have been disappointed, others have done well by selling good quality breeding stock, economically produced, at reasonable prices to farmers, 4-H club members, and vocational agricultural students.

The incomes on many small- or medium-sized farms equipped with modern labor-saving machines are increased satisfactorily by the doing of custom work for neighbors. Where custom rates are sufficient to cover the labor of the operator, major repairs and depreciation on the machines, interest on the investment in machinery, and the immediate operating costs, the doing of such custom work is successful in increasing the family income. However, there are danger points to be watched, such as failure to collect for work done and neglect of work at home. Many lose more by neglecting home work than they gain from custom work. Where the doing of custom work is fitted into the farm business in a business-like manner, family incomes may be increased with less risk of losses than would be incurred in farming additional land. This is particularly true during periods of low grain prices.

The most common way of developing more business on corn-belt farms is through the use of livestock—hogs to consume large quantities of grain, beef cattle and sheep to use roughage and grain, dairy cattle and poultry to utilize feed and the labor available throughout the year. Many who are selling much of the grain from small- and medium-sized corn-belt farms can increase their incomes more safely and to a greater degree by working into well-handled livestock on the land now farmed than by increasing the acreage worked.

However, there are more risks involved when livestock is added to crop production. Successful livestock production requires a higher degree of skill, more patience, and closer attention to business throughout the year than ordinary grain farming.

Three-year records on each of 379 farms in the North Central part of Illinois were grouped according to size as measured by total acres in the farm and according to intensity of business as measured by the number of ten-hour days of labor per acre required in the production of crops and livestock. A ten-hour day of labor at the average rate that farmers work is called a productive man work unit. See Table 1.

Increasing the intensity of the business increased earnings very materially for each size of farm as shown by these data. This increase in earnings applied both to the rate earned on the total farm investment and to the operator's labor and management earnings. (The rate earned on the investment is the net income for each \$100 invested. The operator's labor and management earnings is the net income left for the operator after 5 percent of the total investment has been allowed.) The greater intensity of business on the more intensive farms wa

TABLE 1.—RELATIVE EARNINGS ON FARMS THAT DIFFER IN INTENSITY OF BUSINESS AND IN SIZE^a

Size of farm	Items	Extensive farms under 1.25 MWU ^b per acre	Medium farms 1.25 to 1.74 MWU per acre	Intensive farms 1.75 or more MWU per acre
<i>Small</i> Under 180 acres	Number of farms.....	5	38	52
	Average intensity—MWU per acre.....	1.05	1.50	2.34
	Average size—total acres.....	163.3	154.3	144.8
	Rate earned on investment.....	7.30%	8.36%	10.11%
	Operator's labor and management earnings.....	\$1322	\$1515	\$2164
<i>Medium</i> 180 to 299 acres	Number of farms.....	23	101	47
	Average intensity—MWU per acre.....	1.11	1.50	2.07
	Average size—total acres.....	238.9	234.6	230.7
	Rate earned on investment.....	7.99%	9.07%	9.57%
	Operator's labor and management earnings.....	\$1758	\$2330	\$2763
<i>Large</i> 300 or more acres	Number of farms.....	41	54	18
	Average intensity—MWU per acre.....	1.08	1.43	1.93
	Average size—total acres.....	419.1	382.6	361.0
	Rate earned on investment.....	8.38%	8.98%	9.88%
	Operator's labor and management earnings.....	\$2941	\$3324	\$4087

^aEach record was for the three-year period of 1935, 1936, and 1937 or for 1936, 1937, and 1938. All records were from farms in adjoining counties in North Central and Northern Illinois.

^bMWU is an abbreviation for productive man work unit.

secured in most cases by increasing the amount of livestock. Relatively higher prices for livestock than for grain gave livestock farms a part of their advantage over grain farms during this period of 1935 to 1938.

Increasing the size of farm increased the operator's labor and management earnings for each intensity of business. The labor and management earnings always increase with the size of farm when net earnings run much above 5 percent of the investment, as they did on these selected farms during the years that the records were kept. The reverse would be true for years when net earnings run much under 5 percent of the investment.¹ During periods of low grain prices, large extensively-operated farms are at a disadvantage because such cash costs as for taxes and fuel and oil tend to increase as the size of farm increases and tend to remain fairly uniform regardless of the price of grain.

All around efficient farm operation is more likely to be found on medium-sized intensively-operated farms than on large extensively-operated farms. See Table 2.

The thirty-three farms that did more efficient work than the average of all farms in six or seven of the seven factors considered in Table 2 earned nearly 5 percent of the investment and an operator's labor and management earning of about \$2,500 per farm per year more than the thirty-three farms that did less efficient work than the average in six or seven of the seven factors. The more efficient farms averaged 245.6 acres per farm while the less efficient farms averaged 312.0, or 66.4 more acres per farm. The more efficient farms were much more intensively operated than the least efficient as shown by the 1.95 man work units per acre of productive work on the more efficient farms as compared with 1.21 man work units per acre on the least efficient farms.

The ability of operators of the smaller corn-belt farms to increase their earning power is clearly shown in an analysis reported in Illinois Bulletin 444, "Farm Practices and Their Effects on Farm Earnings." It is shown in that bulletin that of 57 farms on which records were kept, the ten farms that increased their earnings most during the ten years of 1925 to 1934 were earning about \$1,500 per farm per year more in 1932, 1933, and 1934 than they would have earned if they had continued to farm as they were doing in 1925, 1926, and 1927. Those ten farms that made such improvement averaged only 190 acres in size, whereas the average size of the other 47 farms on which records were kept during the same

¹It should be clearly understood that net earnings on these record-keeping farms average much higher than the average earnings on all farms in the area.

TABLE 2.—NUMBER OF ABOVE-AVERAGE FACTORS AS RELATED TO SIZE OF FARM,
INTENSITY OF BUSINESS, AND FARM EARNINGS*

Number of above-average factors	Number of farms	Size of farm acres	Intensity MWU per acre	Rate earned on investment	Operator's labor and management earnings
6 or 7.....	33	245.6	1.95	11.66%	\$3961
5.....	72	230.3	1.84	9.69	2795
4.....	82	252.2	1.51	9.32	2590
3.....	98	276.5	1.42	8.50	2320
2.....	57	275.5	1.38	7.62	1811
1 or 0.....	33	312.0	1.21	6.75	1464

*The seven factors used were: (1) crop system rating; (2) feed per acre to productive livestock; (3) crop yield index; (4) all livestock efficiency index; (5) price index; (6) labor accomplishment index; (7) power and machinery accomplishment index. Each record was for the three-year period of 1935, 1936, and 1937 or for 1936, 1937, and 1938. All records were for farms in adjoining counties in North Central and Northern Illinois.

ten years was 258 acres. It is very significant that it was the smaller farms of the group that were most successful in increasing their earning power.

M. L. MOSHER

COST OF OPERATING TRACTORS IN CENTRAL ILLINOIS, 1938

The average cost per hour for operating tractors in central Illinois in 1938 was 55 cents for two-plow tractors, 66 cents for three-plow tractors, 75 cents for crawler type tractors, and 97 cents for four-plow tractors. There was, however, a wide range of cost in each group due to variations in the hours the tractors were used per year, horsepower rating, and age of tractor. Part of the tractors included in this study were used on sandy soils in Mason and Kankakee Counties, whereas the remainder were used on heavier prairie soils, located in a number of central Illinois counties. The cooperators were selected from areas of widely varying soil types in order to facilitate the study of the effects of soil type on operating costs and on rate of accomplishment.

Cost per Tractor and per Hour. The cost per hour for two-plow tractors averaged about 11 cents less than for three-plow tractors, and the difference was greater for tractors used less than 400 hours per year than for tractors used more than 800 hours per year. (Fig. 1). The cost per hour for both two-plow and three-plow tractors declined rapidly as the number of hours used a year increased up to 700 hours. From 700 to 1,000 hours, there was only a slight decline in hourly cost for additional hours of use.

Of the 155 usable records, 106 were the two-plow type, 38 were three-plow tractors, 7 were crawler type, three were four-plow tractors, and one was a one-plow size. The cost of two-plow tractors averaged 66 cents an hour when used 269 hours a year, 51 cents when used 512 hours, and 41 cents when used 830 hours a year. (Table 1). The average cost an hour for the three-plow tractors was 88 cents when used 275 hours, 58 cents when used 565 hours, and 48 cents when used 823 hours. The average cost for crawler type tractors was 75 cents when used 640 hours per year. The average cost for three tractors of the four plow size was 97 cents an hour, and they were used 295 hours a year.

Depreciation was the largest single item of expense for the tractors used the smallest number of hours, but it was less than fuel cost for those tractors operated the largest number of hours. Tractors used the least number of hours were older tractors than those used the most hours during the year. The income from custom work was largest for those tractors used the most hours. The fuel used per hour averaged 1.6 gallons for the two-plow, and 2.2 gallons for the three-plow tractors.

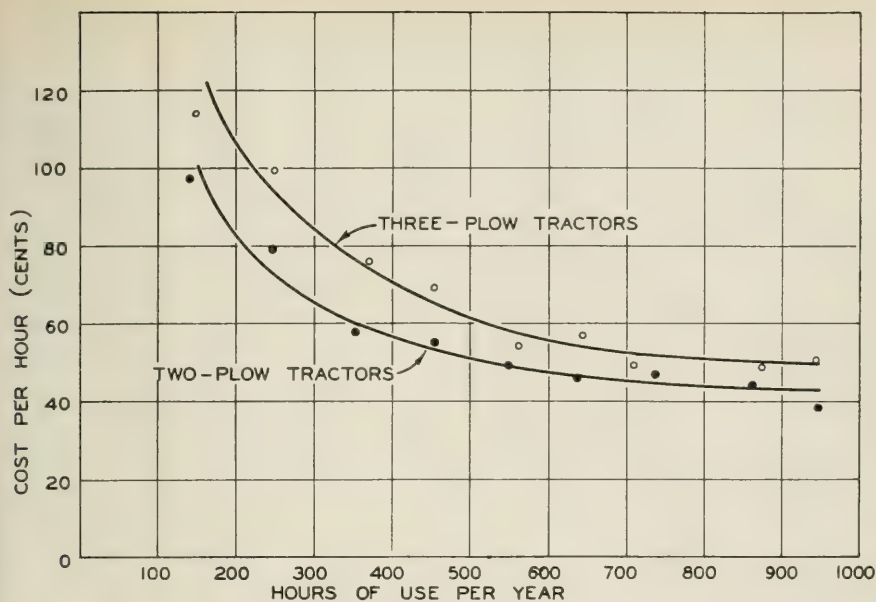


FIG. 1. THE INFLUENCE OF HOURS OF USE ON COST OF OPERATING TWO-PLOW AND THREE-PLOW TRACTORS, CENTRAL ILLINOIS, 1938.

Distribution of Records by Horsepower Rating, Type of Tires, and Soil Types. The two-plow and three-plow tractors were grouped according to horsepower rating, with 27 tractors having a rating from 5.0 to 12.1, 95 tractors with a rating from 12.2 to 18.9, and 22 tractors with a rating of 19.0 or more. Of these 144 tractors, 53 were on rubber tires and 91 on steel. Eighty-four were used on heavy soil and 60 on light or sandy soil. The records grouped on this basis indicate that the tractors with steel tires had been used more years prior to 1938 than the tractors with rubber tires. The tractors with horsepower rating of 19.0 or more, having steel tires, had been used on an average of seven years, whereas those with rubber tires had been used only two years. In all groups except one, the tractors with rubber tires were used more hours in 1938 than the tractors with steel tires. Since hourly costs are influenced by the number of hours used and the hours of use are correlated with the type of tire, it is impossible to study the influence of rubber and steel tires on cost without first eliminating the influence of the hours of use.

Effect of Soil Type on Fuel Use and Cost per Hour. The fuel use per hour was slightly more for tractors used on heavy than on light soil. The 55 tractors used on heavy soil consumed on the average of 1.8 gallons of fuel per hour, as contrasted with 1.7 gallons per hour for 40 tractors used on light soil. The same tractors re-grouped by type of tires, showed an average consumption of 1.7 gallons an hour for rubber tires and 1.9 gallons an hour for steel tires. The following indicates the fuel consumption per hour for 95 tractors with horsepower rating from 12.2 to 18.9:

Type of tires	Heavy soils (gallons)	Light soils (gallons)	Average (gallons)
Rubber tires.....	1.77	1.67	1.72
Steel tires.....	1.91	1.83	1.88
Average.....	1.85	1.75	....

TABLE 1.—COST PER TRACTOR AND PER HOUR FOR VARIATIONS IN
NUMBER OF HOURS USED, CENTRAL ILLINOIS, 1938

Items of cost	Two-plow tractors			Three-plow tractors			Crawler type tractors
	Tractors used 101-400 hours	Tractors used 401-700 hours	Tractors used 701-1000 hours	Tractors used 101-400 hours	Tractors used 401-700 hours	Tractors used 701-1000 hours	
Number of records.....	39	54	13	12	21	5	7
Total hours used.....	269	512	836	275	565	823	640
Cost per tractor							
Fuel.....	\$ 47.71	\$ 94.14	\$165.29	\$ 72.95	\$128.31	\$183.60	\$115.24
Oil.....	7.16	11.26	16.40	9.67	16.60	18.38	29.09
Grease.....	1.13	1.77	1.90	1.05	2.87	1.83	6.22
Repairs.....	14.24	25.56	36.02	28.18	32.90	50.98	48.17
Miscellaneous.....	10	50		23	01	02	9.91
Total operating.....	(70.34)	(133.23)	(219.61)	(112.08)	(180.69)	(254.81)	(208.63)
Depreciation.....	78.10	94.17	89.54	91.17	109.15	106.60	202.29
Interest.....	22.04	25.62	25.16	30.99	31.61	30.82	61.07
Insurance.....	5.00	5.00	5.00	5.00	5.00	5.00	5.00
Shelter.....	2.50	2.50	2.50	2.50	2.50	2.50	2.50
Total overhead.....	(107.64)	(127.29)	(122.20)	(129.66)	(148.26)	(144.92)	(270.86)
TOTAL COST.....	\$177.98	\$260.52	\$341.81	\$241.74	\$328.95	\$399.73	\$479.49
Income from custom work.....	\$ 15.13	\$ 41.21	\$100.53	\$ 75.67	\$ 72.94	\$ 83.40	\$493.77
Cost per hour							
Fuel.....	\$.18	\$.18	\$.20	\$.27	\$.23	\$.22	\$.18
Oil and grease.....	.03	.03	.02	.04	.03	.03	.06
Repairs and miscellaneous.....	.05	.05	.04	.10	.06	.06	.09
Total operating.....	(.26)	(.26)	(.26)	(.41)	(.32)	(.31)	(.33)
Depreciation.....	\$.29	\$.19	\$.11	\$.33	\$.19	\$.13	\$.31
Interest.....	.08	.05	.03	.11	.06	.03	.10
Insurance and shelter.....	.03	.01	.01	.03	.01	.01	.01
Total overhead.....	(.40)	(.25)	(.15)	(.47)	(.26)	(.17)	(.42)
TOTAL COST.....	\$.66	\$.51	\$.41	\$.88	\$.58	\$.48	\$.75
Fuel use per hr. (gals.).....	1.68	1.59	1.81	2.46	2.07	2.09	1.80
Oil use per hr. (qts.).....	.17	.14	.13	.22	.19	.15	.07
Average age (years).....	4.5	3.3	4.1	6.9	3.8	3.2	4.1

TABLE 2.—COMPARISON OF COSTS FOR TRACTORS WITH HORSEPOWER RATINGS FROM
12.2 TO 18.9 ON HEAVY AND LIGHT SOILS, CENTRAL ILLINOIS, 1938

Items	Hours of tractor use per year					
	101-400		401-700		701-1000	
	Heavy soil	Light soil	Heavy soil	Light soil	Heavy soil	Light soil
Number of records.....	15	13	30	22	10	5
Total hours used.....	292	260	530	536	808	822
Average horse power.....	14.6	15.1	15.5	15.2	15.3	15.6
Average age (years).....	4	5	3	3	4	3
Total cost per tractor.....	\$200.82	\$202.48	\$289.81	\$273.76	\$365.63	\$338.39
Cost per hour:						
Fuel.....	\$.20	\$.20	\$.20	\$.19	\$.22	\$.20
Oil and grease.....	.03	.03	.03	.02	.02	.01
Repairs and miscellaneous.....	.03	.11	.04	.06	.05	.04
Total operating.....	(.26)	(.34)	(.27)	(.27)	(.29)	(.25)
Depreciation.....	.31	.33	.20	.19	.11	.12
Interest.....	.08	.09	.06	.05	.04	.03
Insurance and shelter.....	.03	.03	.01	.01	.01	.01
Total overhead.....	(.42)	(.45)	(.27)	(.25)	(.16)	(.16)
TOTAL COST.....	\$.68	\$.79	\$.54	\$.52	\$.45	\$.41
Fuel used per hour (gals.).....	1.91	1.88	1.77	1.66	2.02	1.77
Oil used per hour (qts.).....	.18	.19	.16	.12	.17	.13

TABLE 3.—COST OF OPERATING TRACTORS WITH RUBBER AND STEEL WHEELS RECORDS PAIRED FOR HORSEPOWER RATING, AND HOURS OF USE PER YEAR, CENTRAL ILLINOIS, 1938

Items	Type of tires	
	Rubber	Steel
Number of records.....	38	38
Total hours used.....	531	527
Average horse power.....	15.0	15.6
Average age (years).....	3	4
Total cost per tractor.....	\$274.77	\$274.52
Cost per hour		
Fuel.....	\$.19	\$.21
Oil and grease.....	.02	.03
Repairs and miscellaneous.....	.04	.06
Total operating.....	(.25)	(.30)
Depreciation.....	.20	.16
Interest.....	.05	.05
Insurance and shelter.....	.01	.01
Total overhead.....	(.26)	(.22)
TOTAL COST.....	\$.51	\$.52
Fuel use per hour (gals.).....	1.69	1.87
Oil use per hour (qts.).....	.12	.16

There was no indication (Table 2) that there was any difference in cost per hour due to the effect of soil type, therefore the records from both soil types were combined for a study of the influence of type of tires.

Effect of Type of Tires on Cost per Hour. The total cost per hour was the same for both rubber-tired and steel-tired tractors. (Table 3). Operating costs per hour, however, averaged 25 cents for tractors with rubber tires and 30 cents for those with steel tires. On the other hand, overhead costs averaged 26 cents for rubber tires and only 22 cents for steel tires. The tractors with steel tires were a year older than those with rubber tires and repairs were greater. In this analysis, the records were paired as nearly as possible for horsepower rating and for the number of hours used per year. Since the rubber-tired tractors accomplished more work in an hour than the steel-wheeled tractors and the cost per hour was no greater, there was actually an advantage for the rubber equipment.

Those interested in a more complete report of the tractor study may secure it by requesting a copy of mimeograph AE 1318.

P. E. JOHNSTON

CONSUMERS AND GRADED BEEF

During the past several years, two methods of identifying quality in beef have been in use. They are known as the government grade-stamping and packer-branding systems of quality identification. The former is a system whereby official graders of the United States Department of Agriculture grade the beef according to United States standards and then stamp that particular grade on the carcass, so that it will appear on the major cuts. The latter is a process whereby each packer uses his own graders to grade the beef and then each carcass is branded with one of that packer's beef brands.

Beef producers are interested in identification of quality so that they may feel more confident that their beef is being sold at retail on the basis of its actual quality, and because satisfied customers are likely to buy more beef. Consumers are interested in quality identification because many do not recognize variations in quality and must depend upon someone else to tell them what quality beef they are buying.

Now the question arises, are consumers buying by government grade or by packer brand? When making purchases do they use these methods of recognizing quality if both are available?

During the past summer, 351 consumers were interviewed in Decatur, Illinois, and their reactions to this and other questions were obtained. The interviews were analyzed in two groups, 256 taken at random over the city comprising one group (random sample), and 95 taken in shops actually handling government grade-stamped beef comprising the other (shop sample).

The random sample interviews were sorted on the basis of income— $\frac{1}{3}$ had an income of \$100 or less per month, nearly $\frac{1}{2}$ had an income of from \$101-\$200 per month, $\frac{1}{10}$ received from \$201-\$300, and $\frac{1}{14}$ received over \$301 per month.

Grade-Stamped Beef. One-tenth of the low-income group, $\frac{1}{4}$ of the next, $\frac{1}{2}$ of the third, and $\frac{3}{5}$ of the high-income group said they bought government grade-stamped beef. Several factors might be responsible for this increase with income, but the surprising thing is that so much grade-stamped beef was reported as purchased by low-income groups, particularly when one considers that all grade-stamped beef sold in Decatur was of good, choice, or prime quality. It appears that many consumers with limited incomes will purchase quality beef when that quality is assured. About $\frac{3}{4}$ of the shop sample reported the purchase of grade-stamped beef, this being due in part to the higher income of the consumers in this sample.

Women's organizations were responsible for the introduction of grade-stamped beef into Decatur, and their work has interested many consumers in buying it.

Housewives rated information gained at club meetings and from retailers as being the most important influences in interesting them in grade-stamped beef. Therefore, it would seem that if information is passed out by retailers and educational agencies, it can be made effective.

In both samples, tenderness, dependability, and flavor were the three most important reasons consumers gave for purchasing grade-stamped beef. Leanness and low price were additional factors of less importance.

Packer-Branded Beef. In the random sample, large majorities of all income groups said they bought branded beef. Of the shop sample, only 58 percent bought branded beef. This may be partially explained by the fact that a large percentage of this group purchased grade-stamped beef.

Few consumers could distinguish between packer beef brands. Most consumers could name packing companies, 35 percent knowing three or more, 29 percent knowing two, 23 percent knowing one, and 13 percent could not name any. None knew how many brands any packer used or the quality relationship between these brands. The market survey, a separate study, has disclosed 17 different beef brands from 6 different packers being sold in Decatur. Since the average consumer did not know whether packer first, second, third, or fourth brands were being purchased, it cannot be said that brands were understood or used intelligently as guides to quality in buying beef.

Advertising and the activities of retailers were most influential as reasons for buying beef branded with a packing company's brand. In regard to advertising, just recently the first attempt by packers to differentiate between their various brands has been observed. It would seem that we need more advertising of this nature to help make a brand name mean something to the consumer. Yet more recently a second packer has arranged to merchandise beef carrying both his brands and the official government grade stamps.

About $\frac{2}{5}$ of both samples listed tenderness as the first reason for buying beef branded with a brand name, about $\frac{1}{4}$ listed flavor, $\frac{1}{7}$ listed lower price, and smaller fractions gave other reasons.

Consumer Preferences. Quality in beef is a characteristic of the flesh and the fat. It can best be judged by such characteristics as color and amount of lean, texture of the lean, degree of marbling, the amount and color of the fat, and other characteristics indicating the age of the cattle. In this survey, those people with higher incomes wanted more fat in their beef. Only $\frac{1}{5}$ of the low income group wanted a considerable amount of fat against $\frac{3}{5}$ in the highest. About $\frac{2}{3}$ of the shop sample preferred a considerable amount of fat.

As regards color of fat, 57 and 76 percent of the two samples preferred a white fat, while 39 and 24 percent preferred a yellowish fat. More of the low income group preferred yellowish fat, possibly because their beef purchases had always carried yellowish fat. Since so many consumers obviously prefer yellowish fat over white in their beef, possibly our quality standards should be modified to provide less discrimination against a yellowish beef fat. This may become more important since present government programs are emphasizing increased use of pasture, which tends to produce a yellowish fat.

Marbling, that is mixture of fat with the lean muscle, was desired by 7 out of 10 in the random sample and 9 out of 10 in the shop sample. As for color of lean, about $\frac{9}{10}$ of all consumers interviewed preferred a light or medium red lean.

About 60 percent of both samples did not know the class or sex of beef purchased. When asked if they would like to see the class or sex of the beef stamped on the carcass, 72 percent of the random sample and 44 percent of the shop sample indicated they would. The latter group evidently was satisfied with the beef they were getting, and care less for further identification.

Conclusions. 1. Government grade-stamping of beef seems to be an effective means of identifying quality to the consumer. This method is being used by a goodly proportion of the consumers in Decatur and is growing in usage every year.

2. Grade-stamped beef of the higher grades is being purchased by some consumers in the lower income groups.

3. Dissemination of information through explanations at club meetings and by well-versed retailers seems to be effective in promoting the purchase of government grade-stamped beef. Possibly information put out by other educational agencies working in the meats field would expand its usage.

4. The present method of identifying quality by means of packer branding has definite limitations and was not ordinarily understood by the housewives contacted in this survey.

5. Advertisements and efforts of retailers seem to have been effective in influencing people to buy branded beef.

6. A direct relationship existed between family income per month and preference for fat in beef—the higher the income the greater the preference for considerable fat.

7. Considerable percentages of each sample preferred a yellowish fat to white in their beef. This raises the question whether too much emphasis has been placed on the color of fat in our beef grading.

8. The majority of consumers preferred marbling in their beef and most of them expressed a preference for either a light or medium red lean.

9. Class identification is desired by the majority of consumers and retailers. Since this practice has recently been abandoned by the government graders, the question arises as to whether it is wise to forego a practice which was favored by the majority of consumers and retailers contacted in this survey.

R. C. ASHBY and EARL C. HEDLUND

TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural income ⁸	Factory payrolls ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. In money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period	1926	1926	1924-29	1924-29	1924-29	1924-29	1924-29	1924-29	1923-25	1923-25
1929	95	105	104	99	103	103	104	107	110	119
1930	86	88	89	94	83	87	93	100	89	96
1931	73	65	62	80	58	58	72	87	68	81
1932	65	48	41	69	43	43	62	68	47	64
1933	66	51	45	71	49	51	72	63	50	76
1934	75	65	61	80	57	55	69	72	64	79
1935	80	79	82	81	64	65	80	77	74	90
1936	81	81	86	80	75	82	102	90	86	105
1937	86	86	96	84	81	86	102	95	102	110
1938	79	69	69	80	70	81	101	88	78	86
1939	77	65	65	78	72	...	...	93	...	105 ¹¹
1939 Jan.	77	67	66	78	68	99	127	91	84	101
Feb.	77	67	66	78	60	82	105	91	86	98
Mar.	77	66	66	78	64	103	132	91	88	98
Apr.	76	64	64	78	64	75	96	90	86	92
May	76	64	65	78	65	82	105	91	85	92
June	76	62	62	78	60	72	92	92	87	98
July	75	63	61	78	62	67	86	92	84	101
August	75	61	58	77	71	60	78	93	90	103
Sept.	79	69	71	79	92	73	92	93	94	111
Oct.	79	67	67	79	96	80	101	95	102	121
Nov.	79	67	67	79	78	86	109	96	102	124
Dec.	79 ¹¹	68	66	79	77	...	...	97	...	128 ¹¹
1940 Jan.	79 ¹¹	69 ¹¹	68	79	...	...	...	...	...	120 ¹¹

TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS^{1,2}

Product	Calendar year average			Jan. 1939	Current months		
	1924-29	1938	1939		Nov.	Dec.	Jan.
Corn, bu.	\$.81	\$.45	\$.43	\$.44	\$.42	\$.47	\$.50
Oats, bu.	.42	.24	.28	.26	.31	.35	.37
Wheat, bu.	1.30	.68	.67	.60	.79	.88	.91
Barley, bu.	.66	.53	.41	.40	.43	.44	.48
Soybeans, bu.	1.94	.75	.74	.70	.80	.95	1.00
Hogs, cwt.	9.97	8.06	6.56	7.10	6.10	5.10	5.30
Beef cattle, cwt.	8.57	7.68	8.18	7.70	8.40	8.30	8.50
Lambs, cwt.	12.22	7.76	8.18	8.10	8.20	8.20	8.20
Milk cows, head.	78.00	60.00	63.00	64.00	62.00	65.00	64.00
Veal calves, cwt.	11.27	8.89	9.15	8.90	9.50	9.10	10.20
Sheep, cwt.	6.52	3.36	3.44	3.30	3.40	3.60	3.60
Butterfat, lb.	.42	.25	.23	.24	.29	.26	.29
Milk, cwt.	2.32	1.66	1.59	1.65	1.85	1.80	1.75
Eggs, doz.	.30	.19	.16	.16	.24	.19	.17
Chickens, lb.	.21	.15	.13	.14	.12	.11	.12
Wool, lb.	.36	.21	.25	.22	.31	.31	.30
Apples, bu.	1.59	.95	1.07	1.40	.75	.95	1.05
Hay, ton	13.38	7.65	6.05	6.10	6.20	6.50	6.50
Potatoes, bu.	1.39	.73	.80	.75	.80	.80	.90

¹⁻¹²For sources of data in tables see January issue.Printed in furtherance of the Agricultural Extension Act approved by Congress, May 8, 1914. H. P. Rusk,
Director, Extension Service in Agriculture and Home Economics, University of IllinoisTHE UNIVERSITY OF ILLINOIS
COLLEGE OF AGRICULTURE
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ILLINOIS FARM ECONOMICS

Department of Agricultural Economics, College of Agriculture and Agricultural Experiment Station, in cooperation with the Extension Service in Agriculture and Home Economics, University of Illinois

G. L. Jordan, Editor

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Number 58

RECENT HOG PRICE MOVEMENTS IN THE LIGHT OF SUPPLY AND DEMAND CONDITIONS

Summary. There has been a downward trend in hog prices ever since the middle of 1937. The early part of this decline was brought on by a decline in demand associated with the depression of 1937-38, but the subsequent decline has been the result of larger hog production. Much of the growth of hog production in recent years has been in the South where corn is grown on the land formerly devoted to cotton.

While some seasonal decrease in supplies is to be expected in the next few months, hog marketings are expected to continue large for at least another year. Less than the usual seasonal advance in prices is likely in the next six months unless there should be material improvement in domestic or foreign demand for hog products.



FIG. 1. PRICE OF HOGS AT CHICAGO AND SLAUGHTER AT 12 MARKETS, WEEKLY

Increased Market Supplies. Figure 1 shows the movement of hog prices at Chicago and of slaughter at 12 principal markets. There has been a marked, though irregular decline in prices since the latter part of 1937. This decline has been due in part to the increase in hog marketings which has been underway ever since 1935.

The extent of the increase in marketings, however, is not evident from the

weekly figures. Much of the increased hog production of recent years has been in the southern states, and hogs from these states do not go to the 12 markets for which the weekly data are shown. Furthermore there has been a material rise in average weights since 1937 which has increased the amount of pork even more than in proportion to the greater number of hogs marketed. The growth of the hog supply is better shown by the total weight of hogs slaughtered under federal inspection in the United States. This rose from 7,139 million pounds in 1937 to 9,735 million in 1939. Prospects are that in 1940 federally inspected slaughter will be about 11,000 million pounds.

A decline in business activity during 1937 and early 1938 was also of major importance in contributing to the price decline during the early part of the period shown. In the last six months of 1939, on the other hand, improving business activity was an important factor tending to sustain prices in the face of rapidly increasing supplies.

Larger Pig Crops. Most of the increase in market supplies of hogs has resulted through larger pig crops. From a low point of 55.1 million in 1935 the annual pig crop of the United States has risen to 71.1 million in 1938 and 84.3 million in 1939.

The greatest increase in hog production as compared with a pre-drought average (1929-1933) has been in the southern states. The following table shows the annual pig crops for 1935 and 1939 and the 5-year average, by the principal regions of the United States.

TABLE 1.—PIG CROPS BY REGIONS, AVERAGE 1929-1933 AND ANNUAL 1935 AND 1939

Region	Average 1929-1933	1935	1939 ¹	
			Number	Percent of 1929-1933 average
	(thousands)	(thousands)	(thousands)	(percent)
East North Central.....	20,174	15,442	23,478	116.4
West North Central.....	41,012	22,646	34,312	83.7
All North Central.....	61,187	38,088	57,790	94.4
North Atlantic.....	1,378	1,270	1,822	132.2
Southern ²	14,290	13,722	21,202	148.4
Western.....	3,177	2,006	3,488	109.8
United States.....	80,032	55,086	84,302	105.3

¹Preliminary.

²South Atlantic and South Central States combined.

The production of the Corn Belt states was drastically reduced in 1935 by the 1934 drought, whereas the production of the southern states was but little affected. In 1939 the pig crop of the Corn Belt (North Central region) was only 94.4 percent of the pre-drought average, whereas the South had a crop nearly 50 percent larger than the pre-drought average.

Cotton acreage declined in the South largely as a result of the federal program and unsatisfactory cotton prices. With the reduction of cotton acreage, however has come a great increase in corn and hog production.

Prospects for Market Supplies, 1939-40. The great growth of hog production in the South has resulted in some uncertainty as to just what to expect in the way of slaughter supplies. Although the total 1939 pig crop was not much different than that of 1933, the regional distribution is very different. According to the

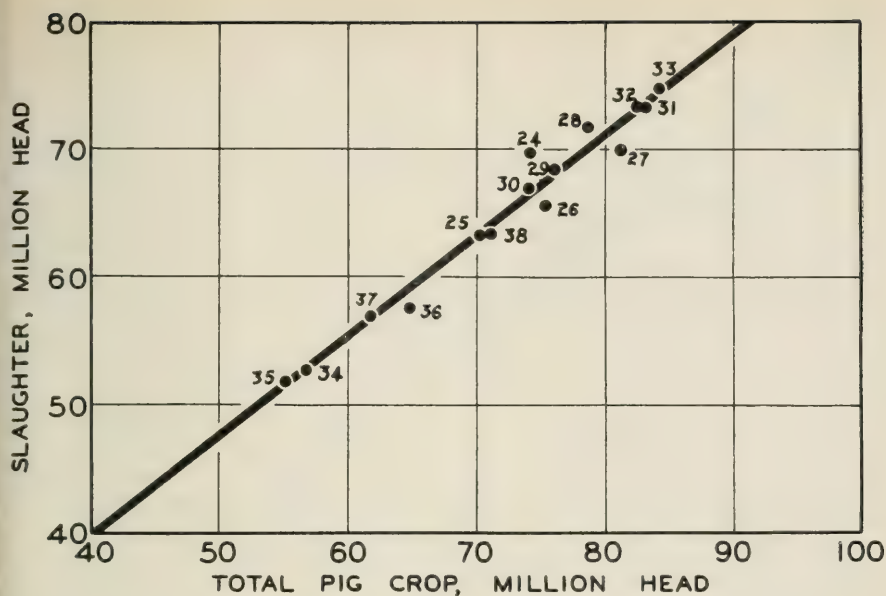


FIG. 2. RELATION OF TOTAL HOG SLAUGHTER* TO TOTAL PIG CROP

Bureau of Agricultural Economics, "Because of the different regional distribution of the 1939 pig crop from other years when the total United States crop was about the same, any forecast of slaughter based on past relationships with the pig crop cannot be exact."¹

However, the growth of southern hog production has been taking place over a period of several years, and does not appear to have affected seriously the relationship between the annual pig crop and slaughter in recent years. Figure 2 shows the relation of the annual pig crops (spring and fall combined) of the years 1924 to 1938 to estimated total number of hogs slaughtered for the October-September hog marketing years of 1924-25 to 1938-39. The figures on hog slaughter in the chart include not only the federally inspected slaughter but also estimates of other slaughter, including that on farms, by retail butchers, and by non-federally inspected wholesale slaughterers.

The number of hogs slaughtered in the marketing years can be closely approximated from a knowledge of the pig crop. The estimated pig crop of 84.3 million head in 1939 might reasonably be expected on the basis of the average relationship to result in a total slaughter of approximately 74.5 million hogs. Some deviation from this average relationship is of course to be expected in any year.

In view of the present unfavorable corn-hog ratio there might well be a considerable liquidation of hogs in the next year or two, and if such a liquidation should begin during the current year, it might well be that total slaughter would exceed the 74.5 million head indicated by the average relationship.

Prospects for Federally Inspected Slaughter, 1939-40. The annual pig crop bears a considerably closer relationship to total slaughter than it does to federally inspected slaughter. Figure 3 shows the federal estimates of the number of hogs slaughtered, other than federally inspected, in the calendar years 1925-1938, com-

*Marketing year, beginning October.

¹Livestock Situation, January 19, 1940, p. 9.

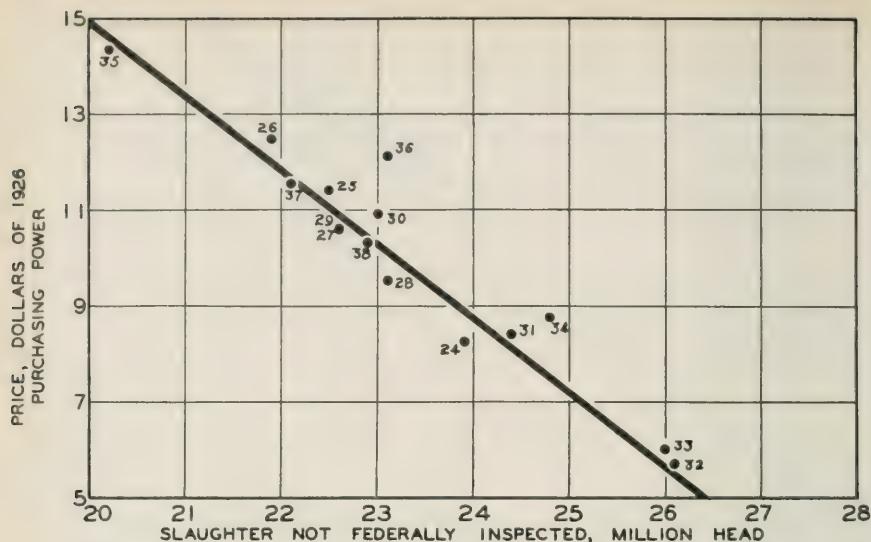


FIG. 3. RELATION OF ADJUSTED PRICE TO NON-FEDERALLY INSPECTED SLAUGHTER

pared with the average cost of hogs per hundredweight in terms of dollars of 1926 purchasing power. On the basis of this relationship prospects for non-federally inspected slaughter can be judged in the light of the possible average price for the season. If the average cost of hogs slaughtered during the 1939-40 season should be \$5.50 per hundredweight and the Bureau of Labor Statistics all-commodity index (1926 = 100) should be 80, this would result in an adjusted price for the crop year of \$6.90, and on the basis of the average relationship shown in Figure 4, would indicate a non-federally inspected slaughter of approximately 25.3 million head of hogs. Subtracting this figure from the 74.5 million head leaves an estimated federally inspected slaughter of about 49 million. If there is a heavy liquidation of hogs during the latter part of the marketing year slaughter might be larger.

Forty-nine million hogs weighing on the average 230 pounds would result in a total live weight of federally inspected slaughter of 11,270 million pounds. Lower average weights would result, of course, in lower total weights of inspected slaughter, but the above reasoning indicates a strong likelihood of federally inspected slaughter during the 1939-40 season amounting to somewhere in the vicinity of 11 billion pounds—possibly more. It is of course based on various assumptions, particularly the assumption that the federal estimate of the 1939 pig crop is correct.

Rate of Marketing. Marketings thus far during the current season have been much larger than last year. Total federally inspected slaughter for the first five months (October to February) of the marketing year (October to September) has amounted to approximately 23 million head compared with 18.5 million during the corresponding period of last season. This has been about a normal rate of marketing of the spring pig crop of 1939 as is indicated by Figure 4.

Although the marketing of the spring pig crop of 1939 appears to have proceeded as rapidly as is normal, marketings through February were not as large a proportion of the year's total as usual. As indicated above, however, federally inspected slaughter for the entire crop year promises to be about 49 or 50 million

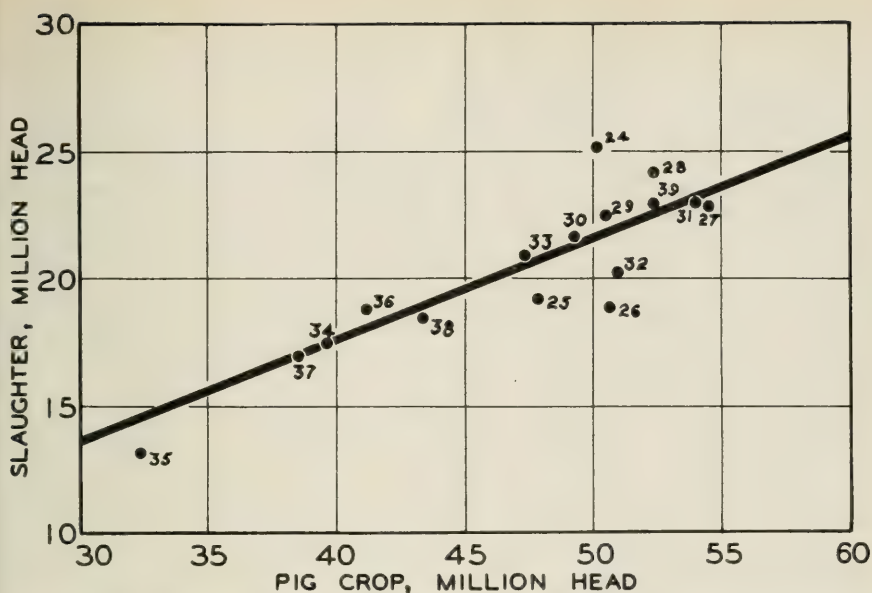


FIG. 4. RELATION OF FEDERALLY INSPECTED SLAUGHTER, OCT.-FEB., TO SPRING PIG CROP

head. Inspected slaughter during the first five months of the marketing year, therefore, comprises approximately 46 percent of the total to be expected for the entire year. This compares with 46.6 percent in the corresponding period of 1938-39 and an average of 49.2 percent for the years 1928-29 to 1937-38 inclusive. The prospect for a larger than average proportion of the year's slaughter during the months March to September inclusive is due to the unprecedentedly large size of the fall pig crop. The fall pig crop of 1939 was the largest in the 16 years during which estimates are available, whereas the spring pig crop has been exceeded in three years, 1927, 1931, and 1933.

Prospects for Market Supplies, 1940-41. Prospects for hog marketings during the year beginning October, 1940 are as yet highly uncertain. Nevertheless it seems clear that hog marketings will be large during at least the first half of the marketing year. According to the December federal pig survey, the number of sows expected to farrow in the spring of 1940 for the United States as a whole is almost exactly equal to the number farrowed in the spring of 1939. In Illinois an increase of 7% in number of sows to farrow was indicated.

The direction of change in Illinois farrowings is corroborated by the inventory numbers of livestock on accounting farms in Illinois. On these farms there has been an increase of 4.4% in the total number of brood sows on hand January 1, 1940 as compared with a year earlier. The increase was confined, however, to brood sows over one year old, there having been an increase of 12% in such brood sows and a decrease of approximately 2% in the number of brood sows less than a year old. This decrease in the younger brood sows indicates that there is already in evidence a tendency to decrease hog production. Furthermore, the percentage of packing sows in packer and shipper purchases at seven markets was 5.0 during the first eight weeks of 1940 compared with an average of 3.7 percent in the corresponding period of the past four years. However, the marketing of the older brood sows does not appear to have been heavy enough to prevent

some increase in the size of the Illinois pig crop this spring, particularly since weather conditions thus far have been favorable for farrowing.

All in all, it would seem that the United States spring pig crop for 1940 is likely to be nearly as large as that of 1939. The corn-hog ratio, which declined drastically during recent months, is likely to continue low and to result in a rather heavy liquidation of brood sows next summer, and in a considerable reduction in the 1940 fall pig crop compared with that of 1939. In view of these indications, it seems likely that hog marketings during the first half of the 1940-41 marketing year will be nearly as large as in the current year, but that there will be a marked decline during the spring and summer months of 1941.

Price Prospects. Since a larger-than-average proportion of the year's hog marketings remain for the months March to September, it is to be expected that any seasonal rise in prices such as ordinarily takes place during these months might be delayed and reduced. The typical seasonal movement of hog prices is for the lowest level to be reached in December or January. In years when the peak of hog marketings comes late, as it did in the 1937-38 season (see Figure 1), the lowest level of prices is likely to be reached in January rather than in December. In years such as 1938-39 when the peak of marketings comes earlier, the tendency is for the lowest prices to be reached in December. Then there is ordinarily a rise during February and March following which there is typically little change until a summer rise results in a seasonal peak of prices in late summer or early fall.

In the current season it is likely that February prices would have improved over those of January and that there would have been some further improvement in March had it not been for the slackening of business activity during the past two months. This slackening of business activity combined with the smaller-than-average proportion of the total pig crop marketed during the early part of the marketing year prevented any seasonal rise during February and bids fair to prevent more than a moderate rise during March or April unless there should be evidence of an end to the current decline in business activity which has been under-way since December.

Some small seasonal rise in prices is of course to be expected between now and midsummer, but a basically strong hog price situation is to be expected only as a result of a marked improvement in demand or as we approach a period of reduced hog marketings. As indicated above, no very material reduction, other than seasonal, in hog marketings seems likely until 1940 fall pigs come on the market. Improved demand for hog products, on the other hand, might occur either from a renewed advance in business activity in the United States or from improvement in foreign demand for hog products.

E. J. WORKING

COST OF PRODUCING HOGS

Over short-time or year-to-year periods, the cost of producing pork on the farm is governed largely by fluctuations in the price of corn, because the value of corn fed to hogs constitutes approximately 65 percent of the total cost of making gain in live weight. However over a long-time period of twenty years or more, the effects of improved methods in hog feeding and management are evidenced in rather definite changes in the amounts of feed, labor, and other cost items required to produce a given gain in hogs and, in turn, affect cost. The increasing practice on the part of hog producers to follow good hog sanitation, to feed rations that are better balanced than those formerly used, to feed grain and concentrates in self-feeders, and to keep growing pigs on legume pastures has

had the effect of reducing the quantity of feed, labor, and other items of cost in hog production. Long-time farm cost studies have measured these changes and shown their effects.

The only recent farm cost figures on hog production in Illinois deal with costs on farms in Champaign and Piatt counties and are typical of the east-central portion of the state. The figures are out of a study which was started in 1920 and has been carried on continuously in these counties since that year. The long-time nature of the study makes the figures on hog costs of unusual value although they were obtained in an area in which the farm income was derived very largely from the sale of feed grains and not from the sale of livestock. During the nineteen years ending in 1938, there was an average annual production of 12,200 pounds of pork represented by sales of 50 to 55 market hogs per farm in the cost study. These hogs in no year consumed as much as one-fifth of the corn produced on the average farm in the study. In the three years 1936-1938, hog sales, and any inventory increases that may have occurred by having more hogs on the farm at the end of the year than at the beginning, amounted to fifteen percent of the gross farm income.

The study, although in a cash grain area, indicates that economies were made possible in the amount of grain and labor required in pork production as the result of changes in the management of the hog enterprise over the past nineteen years. In the five-year period 1920-1924, there were 508 pounds of corn, oats, and wheat fed to obtain 100 pounds gain in weight, while in the recent five-year period, 1934-1938, a total of only 434 pounds of grain were required (see Table 1). During the years which lapsed between the beginning and the end of the period reported, there was an increase in the amount of protein concentrates used in the ration equal to one and three-quarters times the amount used in 1920, and the ratio of protein concentrates to farm grains increased nearly two and one-quarter times the ratio of these feeds in 1920. As ten pounds of skim milk are equivalent to one pound of tankage in the hog ration, skim milk can be reduced to its tankage equivalent. The amount of tankage, tankage equivalent, and other proteins fed in the ration increased from thirteen pounds per hundred pounds gain in hogs in 1920-1924 to twenty-six pounds in 1934-1938. Between these periods, farm grain required in producing one hundred pounds of live hog declined 74 pounds.

Not all of the saving in grain came from the use of better balanced grain rations, although it probably had a major influence; some of the saving was no doubt the result of better hog sanitation and use of more legume pastures. Hogs in this area today are allowed to run on pasture nearly seven times as many days as they were twenty years ago. The practice of allowing hogs to run in husked corn fields is general in the area and, in the accompanying table, days in stalk fields are included as pasture days. In 1920, eight percent of the growing pigs were on legume pasture for varying lengths of time. Twelve percent of the cooperating farmers that year did not place their hogs on pasture of any kind, and hog pasture on the rest of the farms was principally corn-stalk fields. In 1938, forty-three percent of the growing pigs were on legume pasture during the entire spring and summer months; the remaining fifty-seven percent were on non-legume pasture.

The cost records in the early '20's do not indicate the number of farms using self-feeders or those feeding by hand, but the opinions of men who have farmed in these counties during the whole of the period are that far more self-feeding and less hand-feeding is practiced today than twenty years ago. Regardless of the relative economies of the two methods in the utilization of feed by hogs, the self-feeder method requires less man labor and permits the use of the truck to refill the self-feeders only as needed and wherever they may be located on the farm.

R. H. WILCOX

TABLE 1.—COST OF PRODUCING 100 POUNDS LIVE WEIGHT OF HOGS, CHAMPAIGN AND PIATT COUNTIES, 1920-1924 AND 1934-1938

	1920-1924	1934-1938	1934	1935	1936	1937	1938
Cost per 100 pounds gain							
Feed.....	\$7.22	\$5.59	\$4.88	\$5.59	\$6.02	\$7.40	\$4.04
Man labor.....	.99	.55	.49	.54	.55	.59	.59
Horse labor.....	.11	.02	.02	.02	.02	.03	.03
Interest on investment.....	.32	.18	.12	.19	.21	.22	.17
Buildings and equipment.....	.30	.23	.21	.23	.27	.22	.20
Veterinary and medicine.....	.19	.08	.08	.08	.08	.10	.07
Overhead.....	.77	.36	.30	.37	.34	.77	.39
Total cost.....	\$9.90	\$7.01	\$6.10	\$7.02	\$7.49	\$8.93	\$5.49
Feed per 100 pounds gain	(lbs.)	(lbs.)	(lbs.)	(lbs.)	(lbs.)	(lbs.)	(lbs.)
Corn.....	467	401	497	431	360	362	355
Oats.....	39	29	12	14	25	62	33
Wheat.....	2	4	6	5	1	5	3
Tankage.....	4	8	10	10	5	8	5
Other proteins.....	3	11	4	8	12	13	19
Skim milk.....	65	75	89	86	75	64	59
Mill feeds.....	6	2	1	1	5	2	..
Minerals.....	1	1	..	1	1	1	1
Dry roughage.....	4	2	3	3	1	3	..
Pasture days.....	7	46	35	40	65	39	52
Straw (pounds).....	12	16	22	21	13	14	11
Labor per 100 pounds							
Man hours.....	4.0	2.7	2.8	2.8	3.0	2.6	2.5
Horse hours.....	.7	.2	.3	.2	.1	.2	.2
Average price of corn fed.....	\$.74	\$.66	\$.56	\$.71	\$.73	\$.84	\$.46
Ave. weight of hogs sold (pounds).....	213	231	225	225	237	236	234

ILLINOIS LIVESTOCK PRODUCTION ON INCREASE

Livestock on Illinois farms increased sharply in 1939 even though 62 million bushels of 1937 and 1938 Illinois corn were placed under seal, and the sealing of a larger amount of 1939 corn is anticipated. Total feed supplies per animal unit have been at high levels since the harvest of the 1937 corn crop. Livestock numbers were reduced to abnormally low levels as a result of the 1934 drouth and the AAA programs. Since 1935, however, hog numbers have been increasing, and a slight increase in cattle numbers appeared in 1938, followed by a sharp increase in 1939, according to information secured from inventories of over 1900 farm accounts for 1938, and 2520 accounts for 1939.

The accounting farmers had 21 percent more beef cows on hand January 1, 1940, than a year earlier. The increase from 1938 to 1939 was 3 percent. There were 17 percent more feeder cattle on farms January 1, 1940, than a year earlier, as contrasted with an increase of 7 percent for 1938. This increase in beef cattle numbers for Illinois is a part of the general up-swing taking place over the entire United States.

There was an increase of 2 percent in the number of dairy cows between January 1, 1939, and January 1, 1940. The added cows were found in the Chicago and St. Louis dairy areas. No increase in dairy cows was indicated in 1938.

There was an increase of 21 percent in the number of brood sows on farms from January 1, 1938 to January 1, 1939, but an increase of only 4 percent from January 1, 1939 to January 1, 1940. The increase of 21 percent for 1938 checked closely with that reported by the Cooperative Crop Reporting Service, and the December, 1939, pig survey reported 7 percent more sows to farrow in the spring of 1940 than farrowed in the spring of 1939, which is slightly higher than the percentage increase reported by accounting farmers.

The accounting farmers, in common with many others in Illinois, held an

unusual number of spring pigs for sale after January 1, 1940. This situation resulted in excessive marketings of hogs in January and February of 1940. The records indicate an increase of 38 percent in the number of spring pigs on hand January 1, 1940, 23 percent for summer pigs, and 28 percent for fall pigs. There were 87,480 spring, summer, and fall pigs on the 2520 farms January 1, 1939, and 126,598 head on January 1, 1940, or an addition of 30 percent. There were 13.5 litters of pigs farrowed per farm on accounting farms in 1939 as contrasted with 10 litters in 1938. The total number of pigs saved in the United States in 1939 (84.3 million) was the largest on record.

On January 1, 1939, 55 percent of the sows on accounting farms were gilts, whereas on January 1, 1940, this percentage had declined to 52. The large increase in the number of sows in 1938 was due entirely to a larger number of gilts, whereas in 1939, the number of gilts per farm declined and the increase of 4 percent in the number of sows on farms was due entirely to a larger number of sows over a year old.

The hog-corn price ratio dropped very rapidly prior to the period when sows were bred for farrow in the spring of 1940, even though it appears that the carry-over of corn on October 1, 1940, will be about 100 million bushels larger than the record carryover for October, 1939. For the week ending February 17, 1940, 9.0 bushels of corn were equal in value to 100 pounds of hogs, as contrasted with 16.4 bushels for the same week in 1939. The present feeding ratio is less favorable than normal; therefore, there will be but little increase in the number of sows to farrow in the spring of 1940, even though total corn supplies are large. The large amount of corn under seal is responsible, in part at least, for this situation.

Only 75 of the 2520 farms had lambs on feed January 1, 1940, but these farms had 23 percent more lambs than a year earlier.

The following data indicate the percentage increases in livestock on accounting farms from the beginning to the end of the calendar years 1938 and 1939:

	1938	1939
Dairy cows.....	0	2
Beef cows.....	3	21
Feeder cattle.....	7	17
Feeder lambs.....	0	24
Brood sows.....	21	4
Number of pigs		
Spring pigs.....	Decrease 14	38
Summer pigs.....	Decrease 10	23
Fall pigs.....	23	28

The following are the number of sows per farm which farrowed on Illinois accounting farms:

	1938	1939
Spring.....	5.8	7.8
Summer.....	.8	1.1
Fall.....	3.3	4.6
Total.....	9.9	13.5

P. E. JOHNSTON

INCREASING MILK CONSUMPTION THROUGH USE OF QUANTITY DISCOUNTS

Two marked changes which have occurred in the retail distribution of milk in the past few years are the marked increase in store sales of milk resulting in a decreasing proportion of wagon sales, and, more recently, the marked increase in the sale of milk in gallon and half-gallon lots both through stores and on the wagon.

TABLE 1.—DISTRIBUTION OF CLASS I SALES BY UNITS IN THE ST. LOUIS
MARKETING AREA FOR THE JULYS, 1934 TO 1939¹

	Percent of Total Class I Sales					
	1934	1935	1936	1937	1938	1939
Gallons ²						
Wholesale.....	15.09	9.36	7.97	8.64	9.51	7.38 ³
Retail.....	.....	.....	.....	.54	3.21	11.90
Total.....	15.09	9.36	7.97	9.18	12.72	19.28
Half-gallons						
Wholesale.....	.....	.....	.....	.03	.07	4.46
Retail.....	.....	.....	.....	.....	.14	9.87
Total.....	.....	.....	.....	.03	.21	14.33
Quarts						
Wholesale.....	28.81	32.17	36.79	35.29	36.42	29.73
Retail.....	47.95	51.20	46.84	47.06	43.10	31.07
Total.....	76.76	83.37	83.63	82.35	79.52	60.80
Pints						
Wholesale.....	2.97	2.18	2.50	2.38	1.55	.62
Retail.....	2.49	2.44	2.22	1.71	1.07	.59
Total.....	5.46	4.62	4.72	4.09	2.62	1.21
Third-quarts						
Wholesale.....	.58	.55	.66	.72	.78	.65
Half-pints						
Wholesale.....	2.06	2.10	3.02	3.63	4.15	3.59
Retail.....	.05	.....	.....	.....	.....	.14
Total.....	2.11	2.10	3.02	3.63	4.15	3.73
Grand Total						
Wholesale.....	49.51	46.36	50.94	50.69	52.48	46.43
Retail.....	50.49	53.64	49.06	49.31	47.52	53.57
Total.....	100.00	100.00	100.00	100.00	100.00	100.00

¹Compiled by Market Administrator's Office. For 1934, see Ill. Exp. Sta. Bul. 412, p. 134, Table 11.

²Sales through plant stores are included in wholesale, and sales to peddlers are included in retail.

³Including bulk gallons sold in 1939. Bulk gallons in quantities of 2 or more gallons constituted 3.85 percent of the Class I sales in this year.

In New York City, for example, stores handled 46 percent¹ of total sales of milk in 1938 as compared with 28 percent² in 1927. In Chicago, store sales have increased from about one-fifth of the total in 1929 to 46 percent in 1939.³ In 1938, store sales of milk in St. Louis were 42 percent⁴ of total sales compared with about 20 percent⁵ in 1929. Detroit, Philadelphia, Pittsburgh, Los Angeles, and San Francisco are other cities where store sales of milk have increased substantially in recent years.

Sales of milk in gallon and half-gallon containers in St. Louis increased from around 4 percent⁶ of the total in July, 1936 to 29.8 percent in July, 1939. (Table 1). In November, 1939, the Borden and Sheffield companies in New York City initiated the use of the two-quart paper container on their retail routes at a price one and one-half cents per quart lower than the quart price in glass bottles. In January, 1940 the larger milk companies in Chicago commenced the sale of milk in gallon jugs and two-quart bottles in certain competitive areas in this city. Many smaller cities, including Champaign-Urbana, Illinois, have been selling milk in quantity lots at lower prices for several years.

¹New York State College of Agriculture and U.S.D.A., Agricultural Economics 237, June, 1938, pp. 1 and 2.

²Cornell University Agr. Exp. Sta. Bul. 459, July, 1927, p. 7.

³Estimate of Chicago Associated Milk Dealers, Inc.

⁴As reported by the St. Louis Milk Market Administration.

⁵Estimate of an official of one of the larger distributing companies.

⁶This assumes a sale of bulk gallons in 1936 equal to that in 1930 (see Table 1, footnote 3).

Why have store sales of milk increased so rapidly during the past few years? While other factors have undoubtedly had some influence, the major reason why consumers have turned to store sales can be attributed to the low price of milk at stores. In June, 1938, the store price of market milk in New York City averaged 4 cents per quart less than wagon price for single quarts. In Chicago, store prices from 1938 to 1940 have ranged from 2 cents to 4½ cents per quart less than wagon prices for single quarts. In Detroit, store prices in recent years have ranged from 2 to 5 cents per quart below wagon prices. Similar differences between wagon and store prices have taken place in most of the other markets where there have been large increases in store sales of milk.

What has caused the marked increase in sales of milk in gallon and half-gallon lots? In the St. Louis market sale of milk in gallon jugs at 32 to 36 cents at stores paved the way for sale of milk in gallon lots¹ at 40 cents on retail routes. These prices were 3 or 4 cents below the announced retail prices for quarts—13 cents on wagons and 12 cents at stores. Gallon jugs were followed by the two-quart bottle, selling at from 16 to 18 cents in stores and 22 cents for home deliveries. Home deliveries of gallon lots of milk increased from one-half of one percent of the total Class I sales in July, 1937 to 11.9 percent in July, 1939. (Table 1). Half-gallons of milk, wholesale and retail, increased from a negligible amount in July, 1937 to 14.3 percent of total sales in July, 1939. In the Chicago market, sales of milk in stores and in milk depots at low prices also paved the way for the use of gallon jugs and the two-quart bottle for home deliveries. Limited at first to three restricted areas in the suburban areas, quantity discounts more recently have been extended to other areas on the western margin of the city.² In these areas the home-delivered price is 40 cents for gallons and 22 cents for half-gallons, compared with 13 cents, the price for single quarts.

What effect do quantity discounts have upon total sales of milk? In 1939, total milk sales in St. Louis were 9.7 percent higher than in 1938.³ This compared with a 2.3 percent increase during this same period for the 136 markets included in the reports of the Milk Industry Foundation. Since the increase in sales of milk in St. Louis in quantity lots far exceeded the loss of sales in quart or smaller units, it is reasonable to believe that the sale of milk in these larger quantities at lower prices was a strong factor in bringing about the increase in total market sales.

In February, 1940, Chicago dealers reported a 10 to 15 percent increase in sales in the three areas where they first introduced the multiple containers at low prices.² It is probable that, in part at least, this increase in sales represented a shift from store or depot to home deliveries.

Since both St. Louis and Chicago operate under a Federal Order which fixes minimum prices to be paid by handlers, the increased sale of milk in quantity lots in these cities at lower prices represents a reduction in handling margins and not a reduction in prices paid to producers.

R. W. BARTLETT

¹The home-delivered price of 40 cents per gallon became effective throughout the St. Louis market in the late fall of 1938.

²From the Chicago Federal Milk Market Administrator Reporter, February, 1940, pp. 7 and 8.

³Based upon reports of the St. Louis Milk Market Administration.

TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural income ⁸	Factory payrolls ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. In money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period.....	1926	1926	1924-29	1924-29	1924-29	1924-29	1924-29	1924-29	1923-25	1923-25
1929.....	95	105	104	99	103	103	104	107	110	119
1930.....	86	88	89	94	83	87	93	100	89	96
1931.....	73	65	62	80	58	58	72	87	68	81
1932.....	65	48	41	69	43	43	62	68	47	64
1933.....	66	51	45	71	49	51	72	63	50	76
1934.....	75	65	61	80	57	55	69	72	64	79
1935.....	80	79	82	81	64	65	80	77	74	90
1936.....	81	81	86	80	75	82	102	90	86	105
1937.....	86	86	96	84	81	86	102	95	102	110
1938.....	79	69	69	80	70	81	101	88	78	86
1939.....	77	65	65	78	72	...	...	93	91	105
1939 Jan.....	77	67	66	78	68	99	127	91	84	101
Feb.....	77	67	66	78	60	82	105	91	86	98
Mar.....	77	66	66	78	64	103	132	91	88	98
Apr.....	76	64	64	78	64	75	96	90	86	92
May.....	76	64	65	78	65	82	105	91	85	92
June.....	76	62	62	78	60	72	92	92	87	98
July.....	75	63	61	78	62	67	86	92	84	101
August.....	75	61	58	77	71	60	78	93	90	103
Sept.....	79	69	71	79	92	73	92	93	94	111
Oct.....	79	67	67	79	96	80	101	95	102	121
Nov.....	79	67	67	79	78	86	109	96	102	124
Dec.....	79	68	66	79	77	...	...	97	104	128
1940 Jan.....	79	69	68	79	...	...	...	98	98	119
Feb.....	78 ¹¹	69 ¹¹	67	79	...	...	...	97	...	109 ¹¹

TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS¹²

Product	Calendar year average			Feb. 1939	Current months		
	1924-29	1938	1939		Dec.	Jan.	Feb.
Corn, bu.....	\$.81	\$.45	\$.43	\$.40	\$.47	\$.50	\$.51
Oats, bu.....	.42	.24	.28	.25	.35	.37	.37
Wheat, bu.....	1.30	.68	.67	.61	.88	.91	.91
Barley, bu.....	.66	.53	.41	.40	.44	.48	.48
Soybeans, bu.....	1.94	.75	.74	.65	.95	1.00	.94
Hogs, cwt.....	9.97	8.06	6.56	7.50	5.10	5.30	5.00
Beef cattle, cwt.....	8.57	7.68	8.18	8.00	8.30	8.50	8.10
Lambs, cwt.....	12.22	7.76	8.18	7.90	8.20	8.20	8.20
Milk cows, head.....	78.00	60.00	63.00	67.00	65.00	64.00	63.00
Veal calves, cwt.....	11.27	8.89	9.15	9.70	9.10	10.20	9.70
Sheep, cwt.....	6.52	3.36	3.44	3.60	3.60	3.60	3.75
Butterfat, lb.....	.42	.25	.23	.24	.26	.29	.28
Milk, cwt.....	2.32	1.66	1.59	1.55	1.80	1.75	1.70
Eggs, doz.....	.30	.19	.16	.14	.19	.17	.20
Chickens, lb.....	.21	.15	.13	.14	.11	.12	.12
Wool, lb.....	.36	.21	.25	.21	.31	.30	.29
Apples, bu.....	1.59	.95	1.07	1.30	.95	1.05	1.05
Hay, ton.....	13.38	7.65	6.05	6.40	6.50	6.50	6.60
Potatoes, bu.....	1.39	.73	.80	.75	.80	.90	.90

¹⁻¹²For sources of data in tables see January issue.

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Director, Extension Service in Agriculture and Home Economics, University of Illinois

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ILLINOIS FARM ECONOMICS

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G. L. Jordan, Editor

April, 1940

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IMPORTANT

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THE BEEF CATTLE CYCLE

Summary

1. The major year-to-year changes in beef cattle prices are caused by changes in the supply of beef, the demand for beef, and other factors represented in movements in the general level of prices of the nation as a whole.
2. Periods between peaks of the purchasing power of beef cattle have averaged 14-16 years in length with peaks occurring in 1899, in 1915, and in 1929.
3. The present peak will probably occur quicker than usual in relation to the preceding peak because the rapid liquidation caused by the drouths of 1934 and 1936 shortened the cycle.
4. Changes in the purchasing power of cattle have preceded changes in numbers. Periods of expansion of numbers follow periods of liquidation. At the present time we are still in a period of expansion. Unless a drouth occurs, this expansion will probably continue for three years or more but the rate of expansion may be nearing a peak.
5. Beef cattle prices in Illinois follow the same general pattern as do those for the nation as a whole.
6. Changes in steer prices do not exactly follow the cycles in beef cattle prices, but the strong periods in the purchasing power of steers coincide fairly well with those for all beef cattle. The price of steers is influenced more by the size of the corn crop, by the short cycles in steer feeding, and by changes in industrial activity than is the level of cattle prices in general. However, when the cattle price cycle turns down, a period of lower steer prices will probably follow because the eventual liquidation of cattle will bring a big increase in the supply of beef.
7. If this war produces a violent rise of prices such as occurred in the World War, cattle prices will go up less rapidly than will the average prices of all commodities because of the expansion in numbers that is now taking place.

Changes in Prices. Changes in beef cattle prices are a result of changes in factors causing two general types of price movements: (1) changes in those factors which are largely responsible for major up-and-down movements in the general average of commodity prices in the United States and (2) changes in the supply of and demand for beef cattle. Farm prices of beef cattle have fluctuated around the general average of commodity prices in fairly regular long-time movements (Fig. 1). During the past 50 years periods of high prices (when the prices of cattle are high in relation to the general price level) have alternated with periods of relatively low prices.

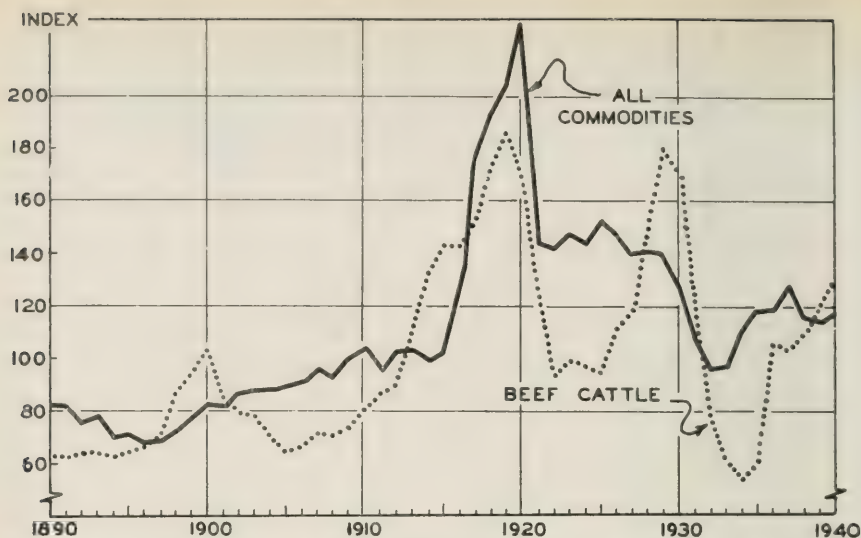


FIG. 1.—WHOLESALE PRICES OF ALL COMMODITIES AND THE JANUARY 1ST FARM PRICE OF BEEF CATTLE, U. S., 1890-1940 (1910-1914 = 100)

The farm price of beef cattle has fluctuated around the average level of all commodity prices; these fluctuations have been violent. Periods of relatively high prices have resulted in farmers holding back breeding stock to increase numbers.

Changes in Purchasing Power. Changes in the price of beef cattle in relation to those in the prices of other commodities are primarily the result of changes in the supply of and demand for beef cattle. When beef cattle are low in price as compared with the general price level, they are said to be low in purchasing power. Likewise, when cattle prices are high in relation to the general price level, they are considered high in purchasing power. These changes in the purchasing or buying power of beef cattle show distinct cycles, averaging 14-16 years from peak to peak, and they have occurred with striking regularity (Fig. 2).

The changes in the purchasing power of all cattle slaughtered in the United States at average wholesale prices¹ follow much the same pattern as do those of the purchasing power of beef cattle at farm prices (Fig. 2). The fluctuations in the farm price, however, have been more violent than have those in the wholesale market price. This relationship between farm prices and wholesale market prices is also characteristic of other farm commodities because of the relative inflexibility of transportation and other marketing costs.

Both beef cattle (at farm prices) and all cattle slaughtered (at market prices) were high in purchasing power in 1898 and 1899, again in 1914 and 1915, and again in 1929 and 1930. Since 1934 and 1935, the purchasing power for both commodities has increased. During each of the past cycles there was a long period of low prices, 1890-1895, 1904-1910, and 1920-1925. In 1934 and 1935, the length of the period of low prices was cut short by the rapid liquidation caused by the very severe drouths. Therefore, the present cycle probably will reach a peak sooner than usual. Past cycles indicate that the purchasing power usually rises for 2 to 3 years after it reaches 100. If previous experience is repeated, the next peak will come in 1940 or 1941.

Expansion and Contraction of Cattle Numbers. During the latter portions of periods of rising purchasing power of cattle, the industry shows good profits

¹Average cost to wholesale slaughterers in the United States.

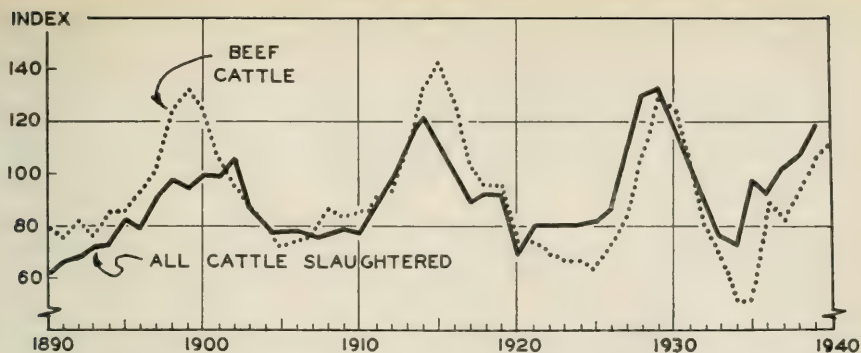


FIG. 2.—PURCHASING POWER OF BEEF CATTLE AT FARM PRICES AND OF ALL CATTLE SLAUGHTERED AT WHOLESALE PRICES, U. S., 1890-1940 (1910-1914 = 100)

The amount of other commodities that beef cattle will buy has varied in cycles of 14 to 16 years. The drouths of 1934 and 1936 have shortened the present cycle.

and cattle numbers expand. Cattle numbers increased from 1896 to 1903, from 1912 to 1917, from 1928 to 1933, and during 1938 and 1939 (Fig. 3). Most of these increases have been in beef cattle rather than in dairy cattle numbers. In recent years dairy cattle numbers have tended to increase and decrease with beef cattle numbers, but such changes are still a relatively unimportant fraction of the total changes in cattle numbers. Periods of liquidation which were associated with declines in the purchasing power of cattle occurred from 1890 to 1895, from 1904 to 1911, from 1918 to 1927, and from 1934 to 1937 (Fig. 3). Because of the very rapid liquidation during the drouths of 1934 and 1936, the last period of liquidation was shorter than the three previous periods.

Cattle numbers have now been expanding for two years. Since each of the three preceding periods of expansion shown in Figure 3 lasted for a minimum of 6 years, it seems probable that the total numbers of cattle will continue to expand for 3 to 4 years, but we may soon reach the maximum rate of expansion. The dotted line in Figure 3 gives the total numbers of cattle in millions since 1890,

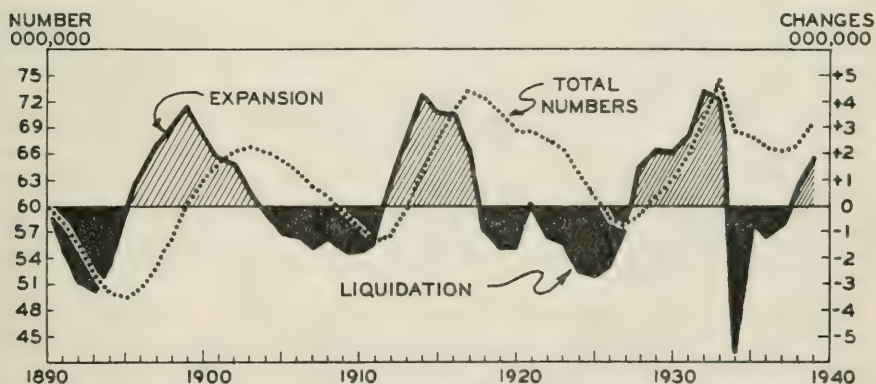


FIG. 3.—NUMBERS OF ALL CATTLE ON HAND AT THE END OF THE YEAR AND CHANGES DURING THE YEAR, U. S., 1890-1940

Whenever the change in numbers is above the zero line, cattle numbers are increasing because farmers are holding back animals to replenish the herds and marketings are less than normal.

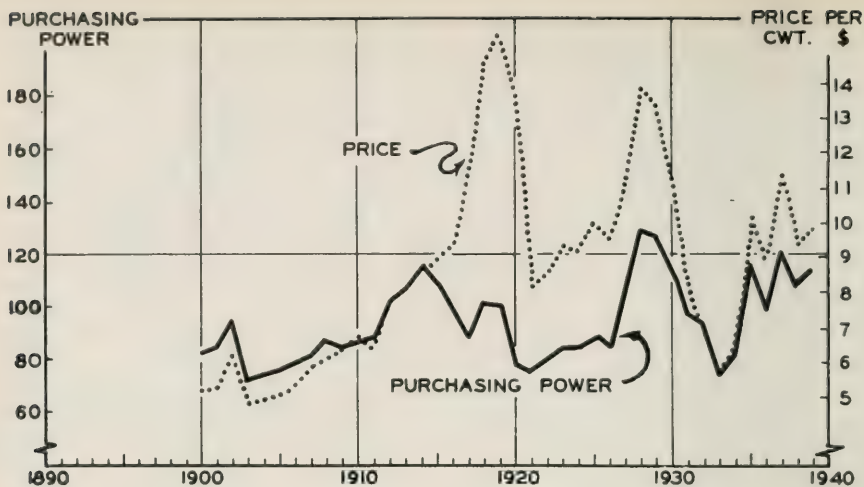


FIG. 4.—PRICES AND INDEX NUMBERS OF THE PURCHASING POWER OF ALL BEEF STEERS SOLD OUT OF FIRST HANDS AT CHICAGO, USING AVERAGE YEARLY WHOLESALE PRICES, 1900-1939 (1910-1914 = 100)

Cycles in the purchasing power of beef steers follow the same general course as do those for other beef cattle. The fluctuations, however, have been more irregular.

showing that the cycle in total numbers has lagged behind the changes in the purchasing power and the rate of expansion of numbers.

Illinois Farm Price of Beef Cattle. Average Illinois farm prices of beef cattle have been reported since 1910 by the Division of Agricultural Statistics at Springfield. When these prices are expressed in terms of their purchasing power, that is, the relation of beef cattle prices to the prices of all commodities at wholesale, the Illinois cycle has been approximately the same as was that for the nation as a whole. Peaks in the purchasing power occurred in 1914 and in 1928-1929. We are now in another period of relatively high purchasing power. If past history repeats itself, it would be unwise to build large breeding herds of beef cattle on the assumption that the present relatively high prices of beef cattle will continue in the future. Overexpansion and the eventual relatively low prices and liquidation are sure to occur. The cattle price cycle is now in about the same position as it was at the outbreak of the World War—that is, it is nearing a peak. If this war were to bring about a rapid increase in the general average of all commodity prices such as occurred in the World War, the price of cattle would rise, but the increasing numbers would prevent it from going up as rapidly as the general average of all prices (Fig. 1). If inventories are sufficiently built up, the collapse of the general price level that is likely to come at the end of the war would cause a severe and protracted liquidation of numbers and a period of extremely low purchasing power such as occurred at the end of the World War (Figs. 1 and 3).

Wholesale Price of Steers at Chicago. Steer prices on the Chicago market are affected by the same factors that cause the cattle price cycle, but the price changes have been more irregular. The short cycles in cattle feeding, the size of the corn crop, the price of corn in relation to the price of beef, and industrial activity are more important factors in the price of steers than in the farm or market price of all beef cattle. Nevertheless, the periods of high purchasing power have occurred at the same time for steers at Chicago market prices as for beef cattle at farm prices and for all beef slaughtered at wholesale prices. (Compare

Figure 2 with Figure 4). A period of expansion in the cattle industry, such as we are going through now, results in holding breeding stock back on the farm and causes an actual reduction, or at least a relatively small increase, in total slaughter. This reduction of total slaughter establishes a good level of steer prices as well as a firm level of beef prices in general. During a period of liquidation following overexpansion the reverse takes place, and we experience a relatively low level of the purchasing power of steer prices.

E. M. HUGHES

ILLINOIS STOCKMEN PATRONIZE CENTRAL MARKETS

Committees of local stockmen obtained data from neighbors on their hog marketings in 1939 as one basis for numerous county livestock-marketing discussion meetings. The information received was recorded on special forms with columns for listing the date of sale of the hogs, number sold, weight, class and grade, place sold, price received, and marketing expense incurred. These data were summarized on a county basis and were used as the central source of discussion in the county marketing meeting.

Unfavorable weather and drifted roads interfered with several meetings, but the attendance was good. Interest was more pronounced than in any other series of meetings the writer has attended, and discussions were right to the point.

The accompanying table presents a summary of the principal market channels through which the hogs moved that were included in the sales reported by

TABLE 1.—SUMMARY OF ANALYSIS OF 1939 HOG SALES AS REPORTED BY ILLINOIS FARMERS IN CONNECTION WITH COUNTY LIVESTOCK-MARKETING MEETINGS

County	Total head of hogs	Sold on central markets	Sold direct to packers	Sold through local markets	Sold to neighbors
		(percent)	(percent)	(percent)	(percent)
Brown.....	3 532	52.9	(*)	43.4	3.7
Edgar.....	2 849	37.1	27.2	35.7	...
Henry.....	7 606	83.5	3.1	11.2	2.2
Jo Daviess.....	6 597	78.2	13.8	5.9	2.1
Knox.....	7 305	85.5	3.1	11.4	...
Ogle.....	4 748	95.3	2.4	1.5	.8
Pike.....	14 750	95.8	.6	1.8	1.8
Schuyler.....	2 845	65.6	9.7	23.4	1.3
Stark.....	1 755	99.8	...	.2	...
Warren.....	2 496	73.4	(*)	21.3	5.3
Totals, or averages.....	54 483	82.20	4.82	11.19	1.66

*Figure included in local market movement; the number sold direct was small.

cooperating local stockmen in ten counties. Of a total of 54,483 head 82.2 percent were sold through the central markets (44,788 head), 4.8 percent were sold direct to packers (2,627 head), 11.2 percent were disposed of through local markets (6,166 head), and the remainder were sold to neighbors or marketed as feeder stock.

Three of the ten counties show over 95 percent of the hogs going to central markets, three show between 70 and 89 percent, two show between 60 and 79 percent, and only one shows less than 50 percent.

Only one county shows over 25 percent of the reported hogs being sold direct to packers, one shows 14 percent, while six show less than 5 percent.

Two counties show over 35 percent of the reported hogs moving through local markets, two between 20 and 30 percent, two show 11 percent, and four less than 5 percent.

While some of the sales reported outside the central markets show an apparent advantage for the seller in terms of net return, others show an apparent disadvantage. If all the hogs sold outside the central markets had belonged to one owner, no net gain from such sales would have been apparent.

With excellent central markets readily accessible to all parts of the state, it is only natural that stockmen should patronize them freely. So long as the central markets operate effectively as open competitive selling places, and give good service to livestock producers at reasonable rates, they will continue to receive large portions of Illinois slaughter livestock.

R. C. ASHBY

STANDARDS FOR COLD STORAGE LOCKER PLANTS

An intensive study of four cold storage locker plants in northwestern Illinois and observations of others in the state reveal that factors to be considered in planning for the successful operation of a locker plant are: (1) location, (2) investment, (3) operating income in relation to current expenses, and (4) management. Proposed standards for these four factors are discussed in the order listed.

Location. Farm families prefer to use lockers located in towns where they do their trading. Therefore, in some counties there may be no need for a locker plant; for example, the farm adviser in a central Illinois county reported that there was no place for a cold storage locker plant in his county because the farm families did the major portion of their shopping in towns located in adjoining counties.

Factors which seem to have a bearing on the number of lockers that might be expected to be rented within the trading area of a town where a locker plant is operated are:

1. Popularity of the locker operator or locker management in the community. The cooperatively managed plant tends to be accepted more readily in areas where cooperative endeavor has been successful and where the people are familiar with the principles of cooperation. Managers of either private or cooperative locker plants should have a good reputation in the community.

2. Competition. Frequently the mistake is made of building two locker plants in an area that will support only one.

3. Availability of electricity in rural communities. Locker patrons need means of storing the frozen foods at home until they can be used. Sixty-two of the 122 farm families who were contacted in this study had electric refrigerators, and 48 had ice refrigerators. Electric refrigerators permit lower temperatures, thus enabling the food to be kept longer in the home; consequently their use reduces the number of trips which the patron needs to make to his locker.

4. Prevalence of all-weather roads. Locker patrons averaged 2.1 weekly trips to their lockers. Roads which are impassable by automobile transportation during several weeks in the year may prevent farm families making the best use of their lockers.

5. Size of incomes of urban families. In this study the urban patrons consisted largely of retired farmers as no industrial workers rented lockers at this time from these companies. It is doubtful if many lockers could be rented to persons in either the very low or very high income groups.

6. Productivity of soil in the farming area. A greater percent of the farmers living on the more productive soil than of those living on the less productive soil rented lockers.

TABLE 1.—RANGE IN LOCKER CAPACITY AND INVESTMENT OF FOUR COLD STORAGE LOCKER PLANTS IN NORTHWESTERN ILLINOIS

Item	Range in capacity and investment	Average capacity and total investment	Average investment per locker capacity
Locker capacity.....	305-495	413	
Land.....	\$ 394-\$ 1,460	\$ 871	\$ 2.11
Building.....	7,940- 10,916	9,410	22.81
Lockers.....	1,525- 2,475	2,063	5.00
Other equipment.....	551- 734	649	1.57
Average investment per locker capacity.....			\$31.49

7. **Frequency with which farm families are accustomed to going to town to trade.** Most of the 122 farm families in this study were accustomed to going to town on Wednesday and Saturday evenings because the stores were open then.

8. **Percent of farm families who have children attending school or working in town.** If daily trips are made to town for other purposes, the patrons are able to visit their locker daily if they care to, at little or no extra cost.

9. **Standard of living.** Relief from what many farm people call the "drudgery" of canning, curing, and storing farm products was rated by 116 of the 122 families as the greatest advantage obtained from using a locker.

Investment. Businesses, such as ice plants and creameries, frequently add the locker business to their own and use some of the same machinery, equipment, buildings, and land. Such an addition gives them an advantage over their competitors because less capital is required and less expense is incurred for interest and depreciation.

While there are locker plants which are put into operation at capital costs lower than original estimates, such cases are unusual. One locker plant operator in Illinois reported in 1939 that, based upon his present net income, he could recover his investment within 4 years. This plant is an example of a locker business operated in conjunction with a grocery store and meat market and combined with very conservative construction and efficient operation. Another operator reported that a number of capital cost items were absent in his original estimate including expenses for: (1) a driveway and sidewalk, (2) a track, (3) lard-rendering equipment, and (4) a stove. Such omissions may prove to be embarrassing.

A wide variation was found in the amount of investment in the 'four cold storage locker plants in northwestern Illinois, each plant being built as a separate business. The variation was great not only in total investment but also in various items such as land, building, locker, and other equipment (Table 1).

There is a close relation between the population of a town and the cost of real estate needed for locker plants. Lots nearer the main business districts are usually more expensive than are those farther out because of the demand for space near the trading centers.

The cost of the buildings was directly related to the locker capacity. The investment in building included expenses involved in laying the foundation, in erecting the building, in installing the cork insulation, the plumbing equipment, the electric wiring, the refrigeration machine and coils, and miscellaneous cupboards, and in painting.

In addition to costs of real estate and the purchase price and cost of installation of lockers, expenses for other equipment included a stove, butcher's block, cutting table, meat grinder, scales, sign and awnings on front of building, keyboard case, rubber stamps, writing desk and chair, triplicate office recording

TABLE 2.—AVERAGE OPERATING EXPENSES OF FOUR COLD STORAGE LOCKER PLANTS,
NORTHWESTERN ILLINOIS, FIRST 343.5 PLANT DAYS

Item	Cents per dollar expense	Item	Cents per dollar expense
Labor		State license	1.02
Manager of each plant	42.04	Coal and fuel	0.77
Manager of the group	18.67	Social security tax	0.71
Office help	.18	Auditor's service	0.70
Total	60.89	Cartons for fruits and vegetables	0.66
Power and light	11.07	Folders and agreements	0.46
Paper	3.71	Legal fees	0.44
Loss on handling meat	2.48	Bonds	0.41
Office supplies	2.28	Incorporation fees	0.40
Water	1.86	Saw service	0.31
Property insurance	1.79	Repairs on equipment	0.27
Advertising	1.78	Capital stock exemption fee	0.26
Clean towel and laundry	1.63	Watchman	0.25
Miscellaneous	1.46	Spray and disinfectant	0.11
Telephone and telegraph	1.43	Banking charge	0.11
Interest on borrowed money	1.37	Dues in locker association	0.04
Postage	1.30	Keys replaced	0.02
		Meetings	0.01
			100.00

machine, paper racks, wire meat trays, butcher's tools, racks for the chill room, water pump and motor for two plants, and lard-rendering equipment for one plant.

Operating Income in Relation to Current Expenses. The major sources of income in the cold storage locker business are locker rentals and service charges. On the average for the first 343.5 days of operation of the 4 plants in this study, the income from locker rentals constituted 64.65 cents out of every \$1.00 income; income from service charges on beef, pork, lamb, and poultry, 30.3 cents; and miscellaneous income, 5.05 cents.

The miscellaneous income was received from processing and sharp freezing fruits and vegetables and the sale of cartons for fruits and vegetables, bones, wrapping paper, lard, and lard cans.

A development that troubled many of the early locker plant operators in Illinois was the number of unexpected expenses that developed. A few of these expenses which have not been mentioned by locker plant promoters in the past are: (1) social security taxes, (2) office supplies, (3) advertising, (4) banking charges, (5) coal and fuel, (6) telephone, (7) saw service, (8) property insurance, (9) clean towel service and laundry, (10) real estate and personal property taxes, and (11) unemployment insurance. A breakdown of the expenses incurred during the first 343.5 plant days of operation by the four cold storage locker plants included in this study is shown in Table 2.

Management. Good management of a cold storage locker plant is fundamental to its successful operation. This study indicates that the plants with managers experienced in the business have a greater percent of the lockers rented and have better satisfied patrons. But since the business is relatively new, it is hard to find good, experienced managers. So the person in charge of a locker plant should study all the literature available on the proper operations of locker plants, should visit and observe the operations of successful plants, and should always be alert to correct or adjust any complaints that might arise from his patrons.

E. N. SEARLS

THE COURSE OF THE PRICE LEVEL

In the September issue of *Illinois Farm Economics* the discussion "War-Time Prices" included a chart comparing the weekly movement of wholesale food prices in 1914 and 1939. Inasmuch as the latest data then available showed the index of food prices still rising, it is interesting to compare the subsequent course of prices with the corresponding course in 1914 and early 1915. This comparison is shown in Fig. 1. It will be noted that since the middle of September there has been a fairly consistent decline in the level of food prices quite similar to the decline which occurred from early September 1914 to March 1915.

There are other respects, of course, in which the movements of wholesale prices in the two years have been very different. Cotton prices have not declined drastically in 1939 as they did following the declaration of war in 1914. On the

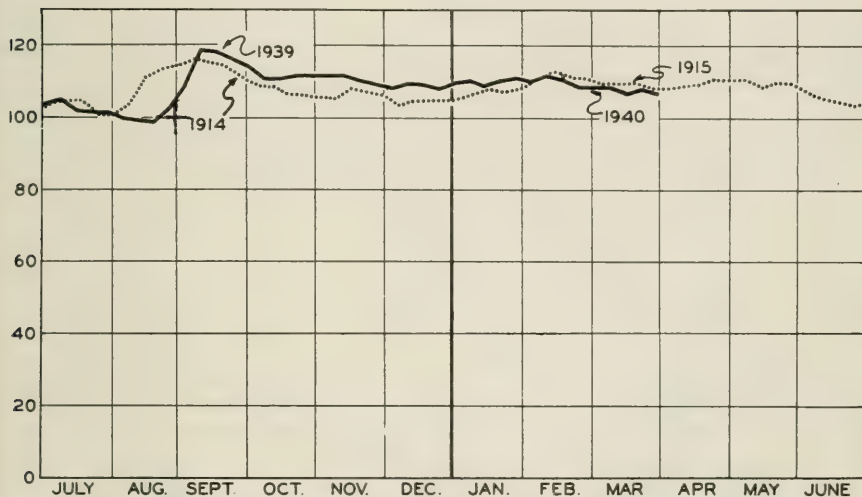


FIG. 1.—WHOLESALE FOOD PRICES, WEEKLY, 1914-15 AND 1939-40 (1913 = 100)

other hand, there was not nearly so great a rise in prices of sugar, rubber, and tin following the declaration of war in 1939 as there was in 1914. Lard prices, which were but little affected in 1914 and then adversely affected, rose during September and October of 1939, but they have subsequently declined to below the levels of last August.

The weekly all-commodity index of wholesale prices of the Bureau of Labor Statistics (base year, 1926 = 100) rose from 74.8 during the week ending August 26 to a high point of 79.5 for the week of September 23. This all-commodity index, which is heavily weighted with commodities other than farm products and foods, has declined much less than the index of food prices. For the week ending March 23 (the latest figure available at this writing), it stood at 77.9, which is the lowest level reached since the September rise.

The movement of prices in the past three or four months, consequently, does not suggest that inflation is underway. But this does not mean that there will be no inflation in the United States growing out of the present European war. As was pointed out in the December, 1939, issue of *Illinois Farm Economics*, there are three things which it is especially important to watch in predicting the prospects for inflation. These things are (1) exports, (2) industrial production, and

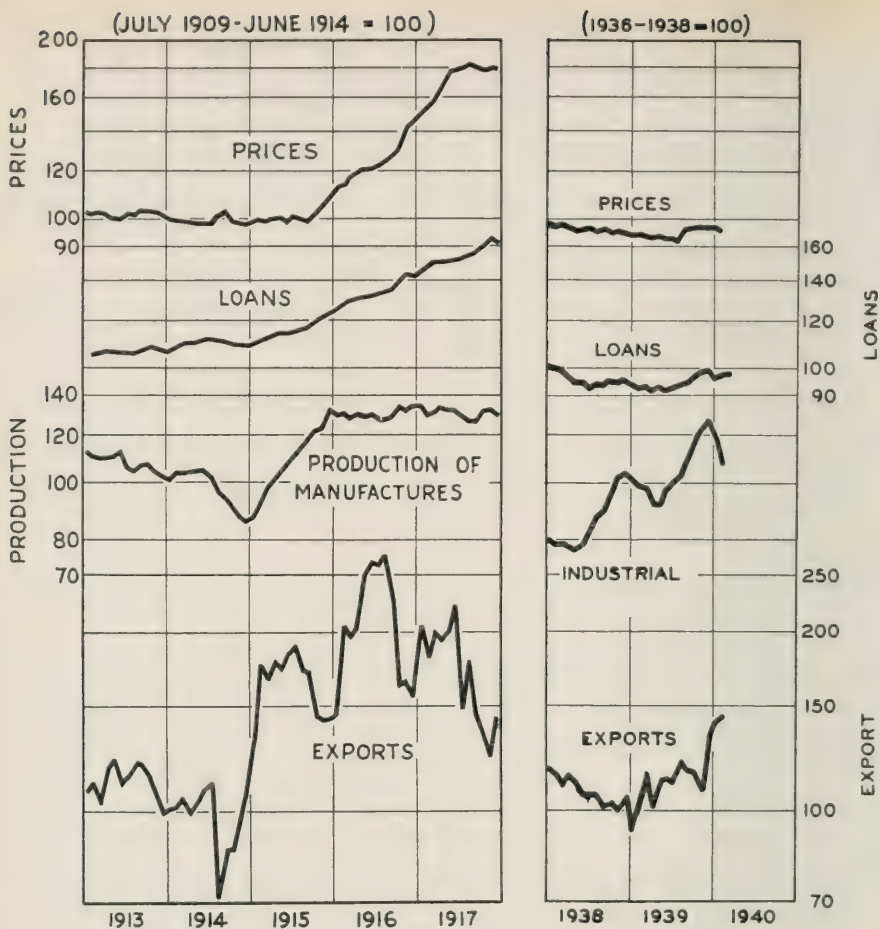


FIG. 2.—WHOLESALE PRICES AND RELATED FACTORS

(3) bank loans and investments. In recent months there has been a very marked increase in the first of these. As shown by Figure 2, the index number of the volume of exports (1936-1938 = 100) has risen to a little over 140, having been maintained at approximately the same level in both January and February. It should be borne in mind, however, that the index number of the volume of exports probably understates somewhat the true increase in export volume because it is based on a rather limited number of commodities for which comparable quantity data may be obtained. A large part of the increase in the value of exports in recent months has been in airplanes and airplane parts which are not included in the quantity index. Total value of exports, when adjusted for changes in the wholesale purchasing power of a dollar and for typical seasonal variation, stood at more than 150 percent of the average level for the period 1936-1938.

Most of the absolute increase in exports which has taken place in recent months has been in manufactured goods. Exports of nonagricultural products have increased from 165 million dollars in February, 1939, and 204 million in August, 1939, to 258 million dollars in February, 1940. Meanwhile, exports of agricultural products increased from 51 million in February, 1939, and 44 million

in August, 1939, to 80 million dollars in February, 1940. The percentage of increase in February exports over those of last year was about equal for both agricultural and nonagricultural groups. The increase in agricultural exports from August to February was partly seasonal. Most of the increase in the exports of agricultural products was in cotton, there having been 425 million pounds of cotton exported in February, 1940, as compared with 151 million pounds exports in February, 1939.

As may be seen from Figure 2, the increase in exports during the current war has not thus far been as large as in the corresponding period of the World War. The difference has not been so great, however, as to prevent there being a marked similarity in the movement of United States exports during the corresponding periods of the two wars. The increase in exports thus far during the current war appears to have been financed largely through United States issued securities held by foreigners and resold in the United States, and through exchange balances accumulated prior to the beginning of the war. The financing of security sales thus far does not appear to have involved bank credit expansion, and consequently such exports have not been inflationary. What the final effects will be will of course depend largely upon the course of exports in future months and upon the method by which they are financed.

Until industrial production reaches a level higher than that which prevailed in December, 1939, and until there is a much greater expansion in bank loans than has thus far taken place, it does not seem likely that there will be any price rise which can reasonably be termed inflationary in nature.

E. J. WORKING

DON'T FAIL TO SEND IN THE ENCLOSED
CARD IF YOU WISH TO CONTINUE TO
RECEIVE ILLINOIS FARM ECONOMICS.

Footnotes for the following page:

¹⁻¹²The first source is for annual data; the second is for current data from which tables may be brought to date.

¹Survey of Current Business, 1936 supplement, U.S. Dept. of Commerce; subsequent monthly issues. ²Same as footnote 1. ³Illinois Crop and Livestock Statistics, Circular 438 (1937); monthly mimeographs of Statistical Tables for Illinois Crop Report, converted from 1910-14 = 100 to 1924-29 = 100 by multiplying by .7151. ⁴Agricultural Situation, Bureau of Agricultural Economics, U.S.D.A.; Agricultural Situation, converted from 1910-14 = 100 to 1924-29 = 100 by multiplying by .6486. ⁵Calculated from data furnished by Bureau of Agricultural Economics; Survey of Current Business, seasonally adjusted. ⁶Calculated by Department of Agricultural Economics, University of Illinois, seasonally adjusted. Data from Farm Income, Bureau of Agricultural Economics; B.A.E. monthly mimeograph. Receipts from Sale of Principal Farm Products (government payments not included). ⁷Obtained by dividing Index of Illinois Farm Income (column 6) by Index of Prices Paid by Farmers (column 4). ⁸Monthly Indexes of Non-Agricultural and National Income, Supplement, August, 1937, B.A.E.; Price and Demand Situation, or Agricultural Situation. ⁹Survey of Current Business, 1938 Revision; subsequent monthly issues, unadjusted for seasonal variation. ¹⁰Federal Reserve Bulletin of Federal Reserve Board, September, 1933 and subsequent issues; Survey of Current Business, seasonally adjusted. ¹¹Preliminary estimate. ¹²Illinois Crop and Livestock Statistics, Cir. 438; Monthly price releases, State Agricultural Statistician.

TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural income ⁸	Factory payrolls ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. In money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period.....	1926	1926	1924-29	1924-29	1924-29	1924-29	1924-29	1924-29	1923-25	1923-25
1929.....	95	105	104	99	103	103	104	107	110	119
1930.....	86	88	89	94	83	87	93	100	89	96
1931.....	73	65	62	80	58	58	72	87	68	81
1932.....	65	48	41	69	43	43	62	68	47	64
1933.....	66	51	45	71	49	51	72	63	50	76
1934.....	75	65	61	80	57	55	69	72	64	79
1935.....	80	79	82	81	64	65	80	77	74	90
1936.....	81	81	86	80	74	82	102	90	86	105
1937.....	86	86	96	84	80	86	102	95	102	110
1938.....	79	69	69	80	72	81	101	88	78	86
1939.....	77	65	65	78	72	...	...	93	91	105
1939 Feb.....	77	67	66	78	73	82	105	91	86	98
Mar.....	77	66	66	78	72	103	132	91	88	98
Apr.....	76	64	64	78	68	75	96	90	86	92
May.....	76	64	65	78	70	82	105	91	85	92
June.....	76	62	62	78	64	72	92	92	87	98
July.....	75	63	61	78	63	67	86	92	84	101
August.....	75	61	58	77	66	60	78	93	90	103
Sept.....	79	69	71	79	74	73	92	93	94	111
Oct.....	79	67	67	79	76	80	101	95	102	121
Nov.....	79	67	67	79	76	86	109	96	102	124
Dec.....	79	68	66	79	79	...	...	97	104	128
1940 Jan.....	79	69	68	79	79	...	...	96 ¹¹	98	119
Feb.....	79	68	67	79	83	...	...	95	98	110 ¹¹
Mar.....	78 ¹¹	68 ¹¹	66 ¹¹	79	...	...	...	...	...	105 ¹¹

TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS¹²

Product	Calendar year average			March 1939	Current months		
	1924-29	1938	1939		Jan.	Feb.	March
Corn, bu.....	\$.81	\$.45	\$.43	\$.40	\$.50	\$.51	\$.51
Oats, bu.....	.42	.24	.28	.26	.37	.37	.38
Wheat, bu.....	1.30	.68	.67	.61	.91	.91	.93
Barley, bu.....	.66	.53	.41	.42	.48	.48	.46
Soybeans, bu.....	1.94	.75	.74	.70	1.00	.94	1.00
Hogs, cwt.....	9.97	8.06	6.56	7.40	5.30	5.00	4.90
Beef cattle, cwt.....	8.57	7.68	8.18	8.20	8.50	8.10	8.10
Lambs, cwt.....	12.22	7.76	8.18	8.00	8.20	8.20	8.60
Milk cows, head.....	78.00	60.00	63.00	67.00	64.00	63.00	64.00
Veal calves, cwt.....	11.27	8.89	9.15	9.80	10.20	9.70	10.00
Sheep, cwt.....	6.52	3.36	3.44	3.90	3.60	3.75	3.70
Butterfat, lb.....	.42	.25	.23	.22	.29	.28	.26
Milk, cwt.....	2.32	1.66	1.59	1.50	1.75	1.70	1.55
Eggs, doz.....	.30	.19	.16	.14	.17	.20	.14
Chickens, lb.....	.21	.15	.13	.14	.12	.12	.12
Wool, lb.....	.36	.21	.25	.21	.30	.29	.30
Apples, bu.....	1.59	.95	1.07	1.40	1.05	1.05	1.15
Hay, ton.....	13.38	7.65	6.05	6.30	6.50	6.60	7.00
Potatoes, bu.....	1.39	.73	.80	.80	.90	.90	.90

1-12For sources of data in tables see previous page.

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Director, Extension Service in Agriculture and Home Economics, University of Illinois

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THE OPPORTUNITIES AND PROBLEMS OF THE SMALL FARM

From time to time the small farm has been suggested as the panacea for most of our social and economic ills. Its opportunities have been pictured in glowing terms. Such a farm would provide a more adequate diet for the family; reduced cost of food and shelter; a relatively certain income and an insurance against rising prices; a variety of work with growing and living things to utilize slack time; a healthy, clean and quiet place to live, and a good environment in which to raise a family; and, if the place is owned or is being purchased, a safe place in which to invest savings, freedom from rental difficulties, and a sure job, especially as one approaches the age when industrial displacement is likely to occur. Such is the "lure of the land."

But the small farm also has limitations which often are overlooked, and especially by those who would make their first venture in farming. To get such an undertaking under way and to live until returns are realized requires a considerable initial outlay of cash. When the returns are realized, they are necessarily limited because of the size of the farm, and they are subject to great variation from year to year because of variations in yields and in prices. Such a unit is poorly adapted to use labor and equipment efficiently; if equipment is adequate, the expense per acre is high, and if inadequate a large amount of strenuous hand labor is necessary, often greatly reducing the anticipated leisure. Diseases and insects are likely to be particularly bad under an intensive system. The conveniences to which the family is accustomed may be lacking. The community must be appraised as to the availability and adequacy of recreation, schools, and churches. Sanitation and health conditions need to be checked. Many communities offer little in the way of outside work to supplement the income. If a small farm is to be purchased, one must judge whether speculative values are represented in the investment.

A small farm means different things to different people, and it means different things in different localities. Basically, farming in this country has developed on the "family size" unit. This may mean several sections in a grazing area, from 160 to 320 acres in the corn belt, 40 acres in the old cotton belt, 5 to 15 acres in an irrigated fruit area, perhaps one acre if under glass, or no surface area where a mushroom farm is operated in an abandoned coal mine. Acreage alone obviously is not a sufficient criterion of size. A "small farm" is a unit which occupies an area or produces a volume of business materially less than that of the prevailing farms of its kind in that area. Its smallness arises from an economic standpoint in that the value of its products are limited and frequently are inadequate to maintain a satisfactory standard of living for the farm family.

In Illinois three general types of small farms may be distinguished: (1) those operated as commercial farms, but whose volume of production is too limited to provide an adequate income; (2) those classified as self-sufficing, where the value of farm products used by the family is 50 percent or more of the total value of all products of the farm; and (3) part-time farms, in which the operator works part or all of the year for pay at jobs not connected with the farm. The first two of these types differ chiefly in degree, the first applying to many farms of 60 to

120 acres and the second group being generally smaller in area except in regions of low productive soils.

For these three groups the economic problems are similar in kind, but the application differs. Many of the operators of the first type are established and have experience in farming. Some of these farms were doubtless economic units at one time, but have become "small" farms because of changing conditions. Such a shift may come about thru subdivision of the original farm; thru changes in its productive organization from an intensive to an extensive type such as from livestock to grain farming; thru changing methods which increase cash expense, such as mechanization on units which do not fully use such equipment; thru lowered production as a result of erosion or heavy cropping; or thru a relatively lower price level for farm products as compared with prices of products bought. All these changes act to reduce the net income after operating expenses have been paid. When this income is inadequate, the farm's resources are likely to be further depleted, and oftentimes the capital is encumbered to secure current living expenses, and the problem becomes progressively more acute.

The subsistence group includes both those established on small places and many who without adequate experience have moved to a small farm to gain greater security. The problem of the former is much like that of the previous type, except that its opportunities may be more limited. That of the beginner in farming is often further complicated by lack of farm experience. Good farming requires a high degree of skill along many lines, and the ability to plan and co-ordinate many diverse interests. These requirements are especially emphasized on the small farm because of its greater economic hazards. How to handle soils of different type and to maintain their fertility; what kinds, amounts, varieties, and cultural practices to use in growing the field and vegetable crops; how to control insect pests; how to feed and handle livestock to secure efficient but economical production; how to preserve the products grown for family consumption; and how to market those to be sold—the solutions to these and many other problems are not learned in a day. While much information of this kind is available in printed form and thru the extension service, its application requires the development of skill and judgment.

The part-time farms probably have the highest proportion of operators with limited experience. Around many industrial centers families have taken up small tracts of land on which they may secure lower living expenses than in the city and thus pay for the place from the savings. The problems here include those listed above in developing experience with particular emphasis on how to make the best use of very limited areas with the meager equipment justified. Yet this situation has less of economic hazard, provided the outside employment is reasonably secure and regular and the wages adequate. As in the other cases the problem is to produce as much as possible of the family's food supply, but the family is less dependent for cash income upon the land.

Whatever the size of the small farm, some principles are essential to its success. The operator should strive to increase the size of his business as much as possible. Obviously one means of doing this is to increase the farm area; but since the possibility in this direction is always limited and serves to displace others, this method does not offer any solution from the standpoint of the community. To be most productive the enterprises on the small farm must be intensive; this means growing the best adapted vegetable and feed crops even though some feeds must be purchased. Special emphasis also needs to be put upon one or more of the following: dairy cattle, hogs, poultry, or truck crops, the choice depending upon the skill of the operator, conditions on the farm, and market outlets. Occasionally if one is skilled, some new specialty can be developed. The proper balance of intensive enterprises may permit the full utilization of the

labor available; if they do not, outside employment, if available, may serve to supplement the income. Cash expenses must be rigidly controlled, since the per acre overhead cost is inherently high on a small acreage. This means that a family must do many things for themselves although it may not be entirely self-sufficient, since, for example, the necessary work in preparing a seedbed and in cultivating a small acreage may oftentimes be hired more cheaply than the power and equipment can be provided and maintained.

From the economic standpoint the picture of the small farm looks very different from that of the idealist, for unless the economic possibilities of the farm and of whatever supplementary employment the situation affords are ample to provide for the family's needs, the social benefits however attractive cannot be realized.

No general and sweeping appraisal can be made of small farms. Each individual case is a problem in itself. The opportunities and the limitations as they apply to each case and to each family must be rigidly analyzed, and sentiment must be distinguished from realities. If this is done upon the basis of factual information, a family may avoid the disillusionment which is so likely to follow where the scale tips heavily to the limitation side; and when it tips the other way the family may perhaps achieve the "promised land."

R. C. Ross

THE COST OF PRODUCING OATS

Costs per acre. Since 1920 the cost of producing oats on a group of selected farms in Champaign and Piatt Counties has been almost consistently above the farm price of oats at harvest time. In the cost of producing oats the operating expenses, which include taxes and all other costs except the interest on land, declined from \$10.21 an acre for the five years 1920-1924 to \$7.44 for the five years 1934-1938. When land charges are added, the total cost an acre in the early period was \$22.87 and in the later period \$13.96 (Table 1).

TABLE 1.—THE COST OF PRODUCING OATS, CHAMPAIGN AND PIATT COUNTIES
1920-1924 AND 1934-1938

	1920-24*	1934-1938	1934	1935	1936	1937	1938
Growing costs per acre							
Man labor.....	\$ 1.76	\$.25	\$.21	\$.24	\$.26	\$.24	\$.29
Power.....	2.81	.53	.53	.45	.65	.53	.47
Seed.....	1.41	1.27	1.15	1.44	1.29	1.56	.92
Other expenses.....	.89	1.43	1.00	1.43	1.74	1.72	1.28
Total growing costs.....	\$ 6.87	\$ 3.48	\$ 2.89	\$ 3.56	\$ 3.94	\$ 4.05	\$ 2.96
Harvesting costs per acre							
Man labor.....	\$.....	\$.86	\$.54	\$ 1.11	\$.92	\$ 1.16	\$.55
Combine.....		.30	.06	.13	.23	.41	.68
Threshing and twine.....	1.43	.60	.33	.83	.63	.91	.30
Power, truck, and machinery..		.96	.78	1.08	1.09	1.27	.61
Total harvesting costs.....		\$ 2.72	\$ 1.71	\$ 3.15	\$ 2.87	\$ 3.75	\$ 2.14
Total growing and harvesting costs per acre.....	\$ 8.30	\$ 6.20	\$ 4.60	\$ 6.71	\$ 6.81	\$ 7.80	\$ 5.10
Land charges							
Taxes.....	\$ 1.91	\$ 1.24	\$ 1.13	\$ 1.22	\$ 1.13	\$ 1.34	\$ 1.40
Interest on land at 5 percent..	12.66	6.52	6.72	6.54	6.36	6.63	6.33
Total acre cost.....	\$22.87	\$13.96	\$12.45	\$14.47	\$14.30	\$15.77	\$12.83
Total income per acre.....	\$18.57	\$11.72	\$ 7.16	\$11.43	\$13.54	\$18.41	\$ 8.09
Net profit or loss per acre.....	-4.30	-2.24	-5.29	-3.04	-.76	2.64	-4.74
Yield per acre, bushels.....	39.7	37.0	14.7	41.4	37.0	55.6	36.4
Net cost per bushel ^b	\$.506	\$.393	\$.759	\$.303	\$.341	\$.233	\$.330
Acres of oats per farm.....	46.8	32.7	39.4	37.8	27.6	28.7	29.8
Percent of crop area in oats.....	24.1	14.9	19.6	17.3	12.2	12.2	13.0
Percent of oat crop combined.....		27.0	11.4	16.1	23.8	35.6	72.2

*No attempt was made to separate harvesting labor, power, and machinery from growing costs for these years.

^bThis figure is reached after allowing credit for straw and pasture.

The cooperating farmers who kept the cost records were operating farms which were about 80 acres larger than were the average farms of the counties, and their farms were better managed than the average ones were. As a result it is felt that their costs of producing oats were lower than were those on all farms.

Costs per bushel. In the five-year period 1920-1924 (Table 1), the net operating expenses per bushel were 17.6 cents, leaving out interest on land value and giving credit for straw and pasture from the stubble. When interest on land value is added, the total net cost per bushel for this earlier period was 50.6 cents. In the five-year period 1934-1938, the net operating expenses without a land charge and with credit given for straw and stubble pasture were 17.8 cents per bushel. When interest on land value is added in these later years, the total net cost per bushel was 39.3 cents. Therefore, the difference in cost of producing oats between the two periods resulted principally from the reduction in the land charge and not from the reduction in operating expenses.

Low-profit crop. The oat crop seldom shows a profit when costs and income are figured on a dollars and cents basis. This basis gives no credit to the crop for its function as a nurse crop in order to obtain a stand of hay and pasture or a stand of legumes to plow under for soil improvement. Neither does it recognize that the crop usually is sown on land which has been heavily cropped and needs a nurse crop for soil-building legumes and that the yield of oats naturally suffers from being sown on land that has been heavily cropped. Therefore, some credit should be given to oats in the accounting records for performing the service of a nurse crop if it were at all possible to determine within reason what it is worth to the farm. But since no basis has been evolved for giving such credit, the income figures on the accompanying table are only for grain, straw, and stubble pasture.

Acreage of oats decreasing. Oats held an important place in the cropping systems on Illinois farms until the rapid decline in its acreage began in the early thirties. Since about 1930 the combined influence of the marked decline in demand for oats as horse feed and the introduction of the more profitable grain crop—soybeans—into the rotation has been largely responsible for the reduction in oat acreage in Illinois. In addition, the feeling on the part of many farmers that the crop was not well-adapted to the use of large-sized, improved machinery—especially harvesting machinery—also affected the acreage. Largely as the result of these three factors, the oat acreage in Illinois declined from 4.3 million acres in 1929 to 3.1 million acres in 1939.

In 1926 oats were harvested from 28 percent of the land in crops on the farms in Champaign and Piatt Counties on which detailed farm costs were kept. After 1926, however, the share of the cropland in oats gradually declined on these farms to 12.2 percent in 1936 and 1937.

Reasons for oats in rotation. In spite of the fact that many farmers look upon oats as an unprofitable cash crop when considering only measurable expenses of production and income, the crop has held on tenaciously for the following reasons:

1. Oats do not compete with corn and soybeans for man labor and power, because field work on oats is done during seasons of the year when there are no demands from these crops and because it helps to reduce the idle time of men and machinery where it is grown.

2. Oats are recognized as a good feed to include as part of the concentrates fed to sows, ewes, and young growing animals.

3. Oats are a good nurse crop, and they will continue to be grown where needed for this purpose even though the crop itself is not a profitable one.

4. Oat straw ranks first among the straws of small grain to fill the need of bedding for livestock.

5. Oat straw is the most nutritious cereal straw and is used on many farms as feed for horses, beef cows, and stocker cattle during the winter.

6. Good cropping systems generally have cultivated crops, small grain crops, and sod crops. This system alternates deep- and shallow-rooted crops, aids in the control of insect pests, and can be used effectively in controlling erosion. As oats are a shallow-rooted crop, they can be used to alternate with deep-rooted crops, such as corn.

7. Tenants like oats in the rotation because an acre of the crop, if harvested with the combine, requires only one-third as much of their labor as does an acre of corn. As a result of less labor expended on an acre of oats, the crop often pays the tenant as well for the time he puts on it as do the other crops in the rotation.

8. As strains of oats, which ripen evenly and in which the grain does not shatter easily when ripe, are developed and adopted, the crop will be harvested with the combine, and the hours of man and horse labor in growing the crop will be much reduced. An indication of the possibility of harvesting the crop with combines was shown in 1938, a good year for combining oats, when 72 percent of the oat acreage was combined on the farms of the cost accounting cooperators in Champaign and Piatt Counties.

R. H. WILCOX

THE OWNERSHIP OF RENTED LAND IN EAST-CENTRAL ILLINOIS

In the cash grain area of 25 counties in east-central Illinois, the separation of ownership and operation of farm property has progressed to the greatest degree of any area in the state. With over 55 percent¹ of the farms in this area operated by tenants and with 70 acres out of every 100 under lease, tenancy must be looked upon as a normal occurrence. The landlord influences not only the income received by tenant farmers, through the amount and kind of rent, but also, in greater or less degree, the farming practices followed. In such an area of high tenancy, exceeded only by certain plantation areas of the South, we might well raise the question as to who owns the land and determine, if possible, any special characteristics which might have a bearing upon the tenancy situation.

The typical landlord in this area, as in other parts of the state, is over 60 years old, owns but one farm, and is either a retired farmer or one who has lived in the local community most of his life. Next in importance is the woman owner who, having in most cases acquired a farm by inheritance, usually turns it over to a tenant. Women are particularly important in the cash grain area because they hold over a quarter of all rented land, or about 40 percent of the rented land in private ownership. Another 10 percent of the rented land is in undivided estates, which result from delay in settlement upon the death of the original owner. Estate land is turned over to tenants because the favorable rental incomes from farms in this area permit the heirs to receive a substantial income without selling the property. In other areas where lower rents prevail, farms are more often divided among the heirs upon the death of the owner, resulting in many small holdings of uneconomic size.

Another feature of ownership in this area is the extent to which men and women owners have turned over the management of their property to agents. In a study of 3 representative counties in the cash grain area, over 10 percent of the rented land was controlled by personal agents rather than by the owners themselves.

In addition to the private owners discussed, we find a certain amount of land owned by nonprivate agencies, such as insurance companies, banks, and other

¹1935 Census of Agriculture; all other data from 1938 A.A.A. records in three selected counties, Champaign, Livingston, and DeWitt.

lending agencies. The relative importance of all of the various classes of land-owners may be judged from the following table:

TABLE 1.—PERCENT OF THE RENTED LAND OWNED BY VARIOUS TYPES OF OWNERS.
THREE CASH GRAIN COUNTIES, ILLINOIS, 1938

Type of Owner	Champaign county	Livingston county ¹	DeWitt county	Average for 3 counties
(Percent of rented land)				
Private ownership or control.....	95.7	90.3	96.3	95.5
Men.....	48.8	47.2	50.5	49.1
Women.....	26.4	21.1	20.0	24.4
Undivided estates.....	10.4	9.4	13.8	11.2
Men or women owners with personal agents.....	10.1	12.6	12.0	10.8
Nonpersonal ownership or control.....	4.3	9.7	3.7	4.5
Insurance companies.....	4.0	6.5	3.2	4.0
Banks.....	.2	1.4	.1	.2
Other lending agencies.....	.1	1.5	.4	.3
All others.....	(²)	.3	(²)	(²)
Total rented land.....	100.0	100.0	100.0	100.0
Percent of the total farm land rented, 1935 Census.....	75.9	73.0	74.8	74.5

¹Based on 4 sample townships, Longpoint, Germantown, Chatsworth, and Round Grove.

²Less than .1 percent; includes churches, schools, railroads, villages, etc.

Even though a large proportion of the land is leased in this area, ownership still lies predominantly with individuals, and corporate owners play a very minor part. The holdings of credit agencies, amounting to about 5 percent in 1938, are probably even less now because the policy of many companies in recent years has been to sell property which was acquired by foreclosure during the depression period.

The question of the amount of absentee ownership likewise deserves attention in this area of high tenancy. In the 3 counties studied the addresses of all private landowners were classified according to their place of residence, whether in the county or adjoining counties, in other counties, or in other states. The results are shown in Table 2.

TABLE 2.—PERCENT DISTRIBUTION OF THE RENTED LAND OWNED BY PRIVATE INDIVIDUALS
CLASSIFIED AS TO THEIR PLACE OF RESIDENCE. THREE CASH
GRAIN COUNTIES, ILLINOIS, 1938

Post Office address of owner	Champaign county	Livingston county ¹	DeWitt county	Average for 2 counties ²
(Percent of rented land)				
In the county or adjoining counties.....	84.8	84.2	87.3	85.5
In other counties.....	9.9	7.6	6.8	9.0
In other states.....	5.3	8.2	5.9	5.5
Total rented land.....	100.0	100.0	100.0	100.0

¹Based on 4 sample townships.

²Livingston omitted because of small sample.

On the basis of this sample it would appear that only about 15 percent of the land is owned by individuals living distant enough to be considered absentee. If insurance companies, banks, and other lending agencies are considered absentee owners, then about 20 percent of the rented land would be so owned. However many of the lending agencies have hired managers to supervise their farms, and

many individuals living at a distance also have hired agents. The amount of supervision which these agents perform may vary from a minimum by those who only collect rents and handle the leasing to the maximum by the professional manager who supervises all phases of the farm business. In many cases the landlord may thus live at a considerable distance but is not absentee in the management sense.

Still another matter of interest in this area is the small extent to which ownership is concentrated in the hands of a few large landowners. In addition to insurance companies and lending agencies which are relatively unimportant in relation to the total farm acreage, we find few individuals with large land holdings. Over 85 percent of the private owners own but a single tract; about 11 percent, two tracts; and 4 percent, three or more tracts.

Although it has not been possible to determine distinct types of owners within the major classes shown in this study, the data do indicate that there are few special characteristics of land ownership which are necessarily associated with high tenancy in this area of Illinois. Other factors than the kind of ownership appear to be more responsible for variations in the amount of tenancy over the state.

W. H. SCOFIELD

COST OF HANDLING GRAIN BY ILLINOIS ELEVATORS

Farmers' elevators do various types of business—some a strictly grain business, others a large merchandise business. It is impossible, however, to allocate costs accurately between the different branches of the business. In this analysis of the operations of 43 Illinois farmers' elevators for the fiscal year ending between July 1, 1937 and June 30, 1938, only figures for companies with 90 percent or more of their sales made up of grain are included. For these companies merchandise can be considered a distinct side-line and the handling of grain the principal business. In order to calculate the cost of handling grain, it was assumed that income from merchandise and miscellaneous sources balanced the costs incurred in handling this merchandise or performing these miscellaneous services.

The method of calculating the cost per bushel for individual companies is illustrated in Table 1.

TABLE 1.—CALCULATED COSTS FOR A PARTICULAR COMPANY

Items	
Expenses ^a	\$7 283
Interest at 6 percent on net worth.....	1 802
Total expenses and interest on net worth.....	9 085
Side-line and miscellaneous income.....	2 403
Difference = (approximate cost of handling grain).....	\$6 682
Bushels handled.....	358 201
Cost per bushel.....	1.9¢

^aThese costs contain all cash outlays and depreciation as set up by the auditor, including interest actually paid but not including income taxes or dividends paid.

Calculated in this manner, the costs of handling grain for the 43 companies were distributed as shown in Table 2.

It may be noted that the average cost was 2 cents per bushel. Of this amount, interest on net worth represented .47 cents, each percent of interest being equal to .08 cent per bushel.

Costs tended to decline with volume until 300,000 bushels were handled; but above that volume, no uniform relationship was indicated between cost and

TABLE 2.—RELATION OF COSTS OF HANDLING GRAIN AND VOLUME, 43 ILLINOIS FARMERS' ELEVATOR COMPANIES, 1937-38

Bushels of grain handled (thousands)	Number of firms	Average cost per bu. for firms in group (cents)	Range in costs per bu. (cents)
Less than 100.....	4	5.46	3.64-9.01
100-199.....	7	2.86	1.68-4.73
200-299.....	14	2.14	1.02-3.56
300-399.....	10	1.61	.89-2.49
400-499.....	5	1.81	.79-2.67
500 and over.....	3	1.77	1.59-2.13
Average or total.....	43	1.99	.79-9.01

volume. The reason why volume and costs are related in this fashion is obvious: Many costs are fixed; and as volume increases, these fixed costs are distributed over more units; therefore, cost per unit decreases.

Twenty-four firms had costs over 2 cents per bushel; and 19 firms, costs below that figure. The 24 with costs over 2 cents per bushel handled a total of 5,426,740 bushels, and the 19 with costs below 2 cents per bushel handled an aggregate of 6,652,060 bushels. Thus, over half of the grain was handled by the companies with costs below 2 cents. Seven firms had costs above 3 cents per bushel, and 36 had costs below that figure. The 7 with costs above 3 cents, however, handled only 7 percent of the grain.

Margins earned. The average margins earned were calculated for all grain combined, not for individual grains. Out of the 43 companies, 18 earned gross margins of less than 2 cents on all grain handled, but 25 earned over that figure, making the average 2.12 cents.

Net Returns. Net returns were calculated for each company by deducting its cost of handling per bushel, calculated as described above, from its gross earnings per bushel.

These net returns were distributed as follows:

Losses (cents)	Number	Gains (cents)	Number
6.0-6.9.....	1	0 -0.9.....	21
5.0-5.9.....	0	1.0-1.9.....	4
4.0-4.9.....	2	Total.....	25
3.0-3.9.....	0		
2.0-2.9.....	1		
1.0-1.9.....	4		
0 -0.9.....	10		
Total.....	18		

Average: .13 cent gain

On this calculated basis, 18 companies showed net losses, which means that they failed to pay expenses and to earn 6 percent on invested capital, and 25 showed profits, the profits of the 43 companies averaging .13 cent per bushel.

L. J. NORTON

CHANGES IN CORN AND HOG PRODUCTION IN THE SOUTH

Some confusion exists concerning the extent to which there have been increases in the production of corn and hogs in the South. In the March issue of *Illinois Farm Economics* it was indicated that a marked increase in the production of corn and hogs in the South has accompanied decreasing cotton acreage. However, figures compiled last fall show that for 12 southern states the 1939

TABLE 1.—AREAS OF SELECTED CROPS IN OKLAHOMA AND TEXAS

Year	Cotton (planted)	Corn (planted)	Cowpeas, peanuts, and soybeans ^a (harvested)	Winter wheat (planted)	All principal crops ^b (harvested)
	(000 acres)	(000 acres)	(000 acres)	(000 acres)	(000 acres)
Average					
1928-32	19 853	8 120	617	8 615	46 567
1937-39	12 325	6 573	1 432	10 548	39 685
1937	15 240	6 316	1 351	10 937	41 640
1938	10 896	6 602	1 433	11 938	39 549
1939	10 840	6 799	1 509	8 770	37 865

^aTotal acreage for all purposes, equivalent solid acreage basis.

^bAll crops included in "46 principal crops" as compiled by the Bureau of Agricultural Economics.

total corn area was 30,800,000 acres compared with 28,920,000 for the 5 years 1928-1932. Production of the same states in 1939 was 450,078,000 bushels compared with the 5-year (1928-1932) average of 442,141,000 bushels.

The above statements seem contradictory, but actually they are not. The apparent discrepancy arises largely because three of the 12 states mentioned above are not primarily cotton-growing states, and two of the others have important areas which lie outside the cotton belt.

The marked increase in hog production in the South is apparent from any combination of southern states, and it makes little difference just what group of states we use in summarizing the data. If, however, we wish to observe the relation between the reduction in cotton acreage and the increase in hog production, we need to restrict our comparison to the cotton-growing states, and even there to take account of the varying conditions in the different states.

There are only nine states in which cotton growing is important throughout any large portion of their area. These states are: North Carolina, South Carolina, Georgia, Alabama, Mississippi, Arkansas, Louisiana, Oklahoma, and Texas.

These nine states are included among the 12 mentioned above, but the 12 states also included Virginia, Tennessee, and Florida. In the latter three states cotton growing is limited to a small area; whereas corn is grown quite generally throughout their entire agricultural area. It is in only 9 of the 12 states, consequently, that changes in the cotton area could conceivably have much effect upon the total corn area.

Two of these 9 states, Oklahoma and Texas, are essentially different from the others in several important respects. Both have large farming areas in which cotton is not important. Northern Oklahoma and the northern panhandle of Texas are part of the winter wheat region. In this region, and also in western Texas, many cattle are raised; whereas there are relatively few cattle in the other important cotton states. Furthermore, a considerable part of Oklahoma and Texas is in the "dust bowl" region where there has been a drastic reduction in the last few years in the total amount of land devoted to crops. The reduction in the feed grain acreage in the drier regions of these states has tended to offset, or more than offset, increases in the amount of grain grown on the land formerly devoted to cotton. Even in much of the cotton-growing area of Oklahoma and Texas, however, the tendency has been to replace cotton with wheat and other small grains rather than with corn. (See Table 1.) Because of all these differences, and also because there has been a much less marked increase in hog production in Oklahoma and Texas than in the other 7 leading cotton states (Table 2), it is helpful to consider them separately.

Corn is the most important hog feed of the South, but it is not the only

TABLE 2.—CORN PRODUCTION AND PIG CROPS (SPRING AND FALL COMBINED)
IN 7 COTTON STATES AND OKLAHOMA AND TEXAS

Year	7 Cotton states		Oklahoma and Texas	
	Corn production	Pig crops	Corn production	Pig crops
	(000 bu.)	(000 head)	(000 bu.)	(000 head)
Average				
1928-32.....	212 964	6 172	133 764	3 296
1937-39.....	266 785	9 565	104 776	3 633
1937.....	276 331	8 392	103 008	2 918
1938.....	288 353	9 742	110 728	3 501
1939.....	235 672	10 561	100 592	4 480

TABLE 3.—AREAS OF SELECTED CROPS IN 7 SOUTHERN STATES^a

Year	Cotton (planted)	Corn (planted)	Cowpeas, peanuts, and soybeans ^b (harvested)	All principal crops ^c (harvested)
	(000 acres)	(000 acres)	(000 acres)	(000 acres)
Average				
1928-32.....	19 339	15 705	4 112	46 436
1937-39.....	13 745	18 552	7 282	48 549
1937.....	16 364	17 466	7 173	49 996
1938.....	12 757	19 310	7 331	48 137
1939.....	12 113	18 879	7 342	47 513

^aNorth Carolina, South Carolina, Georgia, Alabama, Mississippi, Arkansas, and Louisiana.

^bTotal acreage for all purposes, equivalent solid acreage basis.

^cAll crops included in "46 principal crops" as compiled by the Bureau of Agricultural Economics.

important one. Cowpeas, peanuts, and soybeans are also important throughout most of the cotton states, and in Oklahoma and Texas grain sorghums, oats, and wheat need to be added to the list. The acreages of all these crops need to be considered in any thorough analysis of the effect of the reduction of cotton acreage on the ability of these states to produce hog feed.

If we compare the average acreage in the years 1928-32 with the average in the last three years, 1937-39, we find that in the seven states (North Carolina, South Carolina, Georgia, Alabama, Mississippi, Arkansas, and Louisiana) there has been a reduction in cotton area of 5.6 million acres and an increase of 2.9 million acres in the area of corn. The acreage of peanuts, cowpeas, and soybeans in these seven states has increased 3.1 million acres. Somewhat more detailed figures of the areas of the above-mentioned crops in these states are given in Table 3.

The percentage increase in the pig crops of the 7 cotton belt states has been approximately twice as great as the increase in corn production. (See Table 2.) This, however, does not mean that the increase in corn production has not been sufficient to feed the increased number of hogs, for corn is not used only for feeding hogs in the South any more than it is in Illinois. An analysis of the increase in corn production in the 7 states compared with the increase in the hog production indicates that nearly enough additional corn is now being raised to feed the additional hogs, and when we make some further allowance for the production of soybeans, peanuts, and cowpeas, it would seem that the increase in feed production is adequate to take care of the larger numbers of hogs.

The outstanding facts may be summarized as follows: Hog production in the South has increased. This increased production of hogs has been made possible by the production of more hog feed in the South. The production of corn, soybeans, peanuts, and cowpeas and some other feedstuffs in the South has increased. In the seven strictly cotton belt states the increased acreage of the four crops

mentioned above is almost as great as the decrease in cotton acreage. In the light of these and other facts it is clear that the reduction in cotton acreage and the increase in the production of hogs, corn, and other feedstuffs go hand in hand.

The article, "Recent Hog Price Movements in the Light of Supply and Demand Conditions," which appeared in the March issue of *Illinois Farm Economics* carried no implication as to either desirability or undesirability of the recent trends of hog and corn production in the South. Its purpose was to present the outstanding facts responsible for recent hog price movements. In addition to these facts many others should be taken into consideration, if one is to appraise the net effect of interregional competition upon the welfare of corn-belt farmers. A complete analysis of this interregional competition is not possible here, but it may be appropriate to point out that if cotton acreage reduction does tend to reduce hog prices by increasing southern hog production, this does not necessarily mean that such cotton acreage reduction works out to the disadvantage of the corn-belt farmers. But even if cotton acreage reduction does work out to the detriment of corn-belt farmers, we should not blame the southern farmers. They need to adapt their farming to the reduced level of foreign and domestic demand for cotton.

Decreases in cotton production have also involved decreases in the production of cottonseed oil and meal, so that while the southern farmers may be producing more hogs than in the late 1920's, they are producing less cottonseed oil to compete with lard. In the corn belt, on the other hand, while hog production has been reduced, production of soybeans has greatly increased, and this has increased the amount of soybean oil and meal. Soybean oil, of course, competes directly with cottonseed oil for use in oleomargarine and vegetable oil shortenings as well as with lard produced in the corn belt. There is no more reason for corn-belt farmers to be concerned about the increased hog production in the South than there is for southern farmers to be concerned about increased soybean production in the corn belt.

E. J. WORKING

Footnotes for the following page:

¹⁻¹²The first source is for annual data; the second is for current data from which tables may be brought o date.

¹Survey of Current Business, 1936 supplement, U.S. Dept. of Commerce; subsequent monthly issues. Same as footnote 1. ²Illinois Crop and Livestock Statistics, Circular 438 (1937); monthly mimeographs of Statistical Tables for Illinois Crop Report, converted from 1910-14 = 100 to 1924-29 = 100 by multiplying by .7151. ⁴Agricultural Situation, Bureau of Agricultural Economics, U.S.D.A.; Agricultural Situation, converted from 1910-14 = 100 to 1924-29 = 100 by multiplying by .6486. ⁵Calculated from data furnished by Bureau of Agricultural Economics; Survey of Current Business, seasonally adjusted. ⁶Calculated by Department of Agricultural Economics, University of Illinois, seasonally adjusted. Data from Farm Income, Bureau of Agricultural Economics; B.A.E. monthly mimeograph. Receipts from Sale of Principal Farm Products (government payments not included). ⁷Obtained by dividing Index of Illinois Farm Income (column 6) by Index of Prices Paid by Farmers (column 4). ⁸Monthly Indexes of Non-Agricultural and National Income, Supplement, August, 1937, B.A.E.; Price and Demand Situation, or Agricultural Situation. ⁹Survey of Current Business, 1938 Revision; subsequent monthly issues, unadjusted for seasonal variation. ¹⁰Federal Reserve Bulletin of Federal Reserve Board, September, 1933 and subsequent issues; Survey of Current Business, seasonally adjusted. ¹¹Preliminary estimate. ¹²Illinois Crop and Livestock Statistics, Cir. 438; Monthly price releases, State Agricultural Statistician.

TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural income ³	Factory payrolls ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. In money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period	1926	1926	1924-29	1924-29	1924-29	1924-29	1924-29	1924-29	1923-25	1923-25
1929	95	105	104	99	103	103	104	107	110	119
1930	86	88	89	94	83	87	93	100	89	96
1931	73	65	62	80	58	58	72	87	68	81
1932	65	48	41	69	43	43	62	68	47	64
1933	66	51	45	71	49	51	72	63	50	76
1934	75	65	61	80	57	55	69	72	64	79
1935	80	79	82	81	64	65	80	77	74	90
1936	81	81	86	80	74	82	102	90	86	105
1937	86	86	96	84	80	86	102	95	102	110
1938	79	69	69	80	72	81	101	88	78	86
1939	77	65	65	78	72	...	...	93	91	105
1939 Apr.	76	64	64	78	68	75	96	90	86	92
May	76	64	65	78	70	82	105	91	85	92
June	76	62	62	78	64	72	92	92	87	98
July	75	63	61	78	63	67	86	92	84	101
August	75	61	58	77	66	60	78	93	90	103
Sept.	79	69	71	79	74	73	92	93	94	111
Oct.	79	67	67	79	76	80	101	95	102	121
Nov.	79	67	67	79	76	86	109	96	102	124
Dec.	79	68	66	79	79	...	...	97	104	128
1940 Jan.	79	69	68	79	79	...	...	96	98	119
Feb.	79	68	67	79	83	...	...	95 ¹¹	98	109
Mar.	78	68	66	79	76 ¹¹	...	...	95	98	103 ¹¹
Apr.	78 ¹¹	69 ¹¹	67 ¹¹	80	...	...	...	...	...	...

TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS¹³

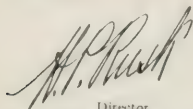
Product	Calendar year average			April 1939	Current months		
	1924-29	1938	1939		Feb.	March	April
Corn, bu.....	\$.81	\$.45	\$.43	\$.40	\$.51	\$.51	\$.54
Oats, bu.....	.42	.24	.28	.26	.37	.38	.38
Wheat, bu.....	1.30	.68	.67	.61	.91	.93	.97
Barley, bu.....	.66	.53	.41	.41	.48	.46	.48
Soybeans, bu.....	1.94	.75	.74	.75	.94	1.00	.97
Hogs, cwt.....	9.97	8.06	6.56	6.80	5.00	4.90	4.95
Beef cattle, cwt.....	8.57	7.68	8.18	8.60	8.10	8.10	8.20
Lambs, doz.....	12.22	7.76	8.18	8.60	8.20	8.60	8.90
Milk cows, head.....	78.00	60.00	63.00	63.00	63.00	64.00	65.00
Veal calves, cwt.....	11.27	8.89	9.15	9.20	9.70	10.00	9.50
Sheep, cwt.....	6.52	3.36	3.44	4.00	3.75	3.70	3.70
Butterfat, lb.....	.42	.25	.23	.20	.28	.26	.26
Milk, cwt.....	2.32	1.66	1.59	1.45	1.70	1.60	1.55
Eggs, doz.....	.30	.19	.16	.14	.20	.14	.13
Chickens, lb.....	.21	.15	.13	.14	.12	.12	.13
Wool, lb.....	.36	.21	.25	.21	.29	.30	.28
Apples, bu.....	1.59	.95	1.07	1.40	1.05	1.15	1.25
Hay, ton.....	13.38	7.65	6.05	6.30	6.60	7.00	7.00
Potatoes, bu.....	1.39	.73	.80	.80	.90	.90	.90

¹⁻¹²For sources of data in tables see previous page.

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 Director, Extension Service in Agriculture and Home Economics, University of Illinois

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G. L. Jordan, Editor

June, 1940

Number 61

WATER AND TRUCK TRANSPORTATION OF ILLINOIS GRAIN

Water Transportation

Shipments on the Illinois River. The quantity of grain apparently shipped from points on the Illinois River and Waterway amounted to 19,016,400 bushels in 1939 as compared with 18,314,000 bushels in the previous year. Both of these figures are based on receipts at Chicago plus shipments by the Federal Barge Lines minus any duplications.

The quantities of the various grains for these two years were:

<i>Grain</i>	<i>1938 (bushels)</i>	<i>1939 (bushels)</i>
Corn.....	16 058 000	15 662 800
Wheat.....	1 161 000	1 152 700
Oats.....	603 000	986 900
Soybeans.....	420 000	1 167 000
Rye.....	72 000	31 000
Barley.....	0	16 000
Total.....	18 314 000	19 016 400

Slightly less corn and wheat were handled in 1939 than in 1938, but more oats and soybeans were shipped.

In addition to the total amounts given above, 1,405,500 bushels of grain which originated on other rivers were delivered to Chicago by the Illinois Waterway. This amount was largely wheat from Kansas City, but it also included wheat from St. Louis and a small lot of soybeans from Arkansas.

Points from which grain was shipped. New facilities for handling grain were opened on the Illinois River in 1939 at Seneca, LaSalle, and Kampsville. Grain was shipped from the following points: Morris in Grundy county; Seneca, Ottawa, and LaSalle in LaSalle county; Hennepin in Putnam county; Henry and Lacon in Marshall county; Chillicothe and Peoria in Peoria county; Pekin in Tazewell county; Havana in Mason county; Naples in Scott county; Montezuma in Pike county; and Kampsville in Calhoun county. In all, 17 elevators operated by 6 different firms were operated on the river.

Destinations. The largest single desination of all this grain was Chicago. The quantities of grain shipped from the Illinois River to different destinations in 1939 follow:

<i>Destination</i>	<i>Number of bushels</i>	<i>Percent of total</i>
Chicago.....	15 678 500	82.4
New Orleans.....	2 415 800	12.7
Memphis.....	344 900	1.8
St. Louis.....	296 300	1.6
New Madrid, Missouri.....	155 200	0.8
Vicksburg, Mississippi.....	115 000	0.6
Mobile, Alabama.....	10 700	0.1
Total.....	19 016 400	100.0

Chicago was the principal destination (82.4%); New Orleans, the second (12.7%); and the remaining 4.9% went to 5 other points.

Reshipping rates. Much of the grain going to New Orleans presumably went for export, and, therefore, no question of railroad freights was involved. At Chicago grain received from the river may be reshipped either by lake boat, or by rail on favorable reshipping rates. A case involving the cancellation of these reshipping rates is now pending before the Interstate Commerce Commission. If these rates are cancelled and if grain going to Chicago from the Illinois River has to pay local rail rates when reshipped from Chicago, such grain will sell to less advantage at times than it does at present. This is not true when the grain is shipped east from Chicago by water; but, when this movement is via rail, the sale of the grain would be hampered if the reshipping rates are cancelled. For example, the local rail rate on grain from Chicago to New York is 38 cents per 100 pounds as compared with 26 cents for grain received via the waterway.

This water movement developed because the combined cost of transportation and handling via truck to the river and then via barge to market was less than was the rail rate when the total costs in connection with both systems are considered. The water movement continued during 1939 in spite of rather low local rail rates into Chicago. These local rates, however, do not permit the grain to be reshipped on the lower reshipping rate.

Shipments via river from points in Illinois on the Mississippi River. The Federal Barge Lines handled 1,242,000 bushels from 4 points on the upper Mississippi River above St. Louis; these points are New Boston and Keithsburg in Mercer county, Oquaka in Henderson county, and Quincy in Adams county. This grain went chiefly to New Orleans along with smaller quantities to St. Louis and Memphis. From the lower Mississippi, 241,000 bushels were shipped to New Orleans from Grand Tower and Cairo. Shipments from St. Louis or East St. Louis are not included here because they include transshipments. However, considerable grain was trucked to St. Louis in 1939 and then shipped out by river.

In addition to shipments from Illinois points, 2,832,000 bushels of grain were shipped from other states on the upper Mississippi, including Minneapolis and St. Paul in Minnesota and Clinton, Davenport, and Muscatine in Iowa with Muscatine being the most important Iowa point. From these points grain went chiefly to Memphis and New Orleans with small shipments to St. Louis, New Madrid, Cairo, Greenville, and Vicksburg. On the lower Mississippi heavy shipments were made from St. Louis and East St. Louis and smaller ones from New Madrid, Cape Girardeau, and Bird's Point in Missouri, Osceola, Memphis, Greenville, Vicksburg, and New Orleans. The chief destination was New Orleans with smaller shipments to Chicago, Memphis, Greenville, Vicksburg, and Mobile.

Truck Transportation

Increase in trucking. In addition to the trucking to local elevators, movement of grain by trucks is increasing. The river business is based on assembling by truck. The area from which this grain is trucked varies, but the bulk of it comes from within a radius of 40 miles. The distance depends, however, on the combined cost as noted above. In areas where rather high freight rates prevail grain is hauled to the river from longer distances. The three markets to which the largest quantities of Illinois grain are trucked are Chicago, St. Louis, and Peoria-Pekin.

The increase in trucking of grain is based on the simple fact that railroad freight rates on grain are high for short hauls. When these rates are above the costs by truck, the latter has an advantage in hauling any grain not subject to discount because it lacks favorable "railroad" billing. If grain is moved out of a market by water or is manufactured into products for local consumption, it is not subject to these discounts. Thus, if the railroad rate is 12 cents per 100 pounds for a distance of 80 miles, the cost is \$2.40 per ton, or 3 cents per ton mile.

If a truck will haul for 2 cents per ton mile, the rate for 80 miles would be 8 cents per 100 pounds. The difference between 12 cents and 8 cents per 100 pounds is 2¼ cents a bushel of corn.

Chicago. According to figures furnished by the Chicago Board of Trade, the following quantities of trucked grain were received in 1938 and 1939 at Chicago.

<i>Grain</i>	<i>1938</i>	<i>1939</i>
Corn.....	2 627 000	5 005 000
Wheat.....	481 000	410 000
Soybeans.....	181 000	336 000
Oats.....	65 000	122 000
Rye.....	19 000	8 000
Barley.....	1 000	4 000
Total.....	3 374 000	5 885 000

Thus between 1938 and 1939 the receipts nearly doubled after a sevenfold increase between 1937 and 1938. The increase was largely in corn although, on a percentage basis, the truckings of soybeans and oats also increased sharply. Truck receipts are largely handled by two established elevator operators.

St. Louis. The Merchants' Exchange of St. Louis reported the following quantities of grain received by "wagon and truck" at St. Louis and East St. Louis in 1939:

<i>Grain</i>	<i>Number of bushels</i>
Corn.....	2 800 000
Wheat.....	2 260 000
Oats.....	25 000
Rye.....	1 000
Soybeans.....	Not reported
Total.....	5 087 000

This amount is slightly over 10 percent of the total reported receipts of grain. According to Mr. A. T. Sindel, Traffic Commissioner of the Exchange, truck receipts are somewhat understated because some of the smaller buyers fail to report. Four grain firms are equipped to handle truck grain at St. Louis in addition to various small feed stores and mills.

The above receipts of 5,087,000 bushels compares with the reported total of 581,000 in 1938 and 576,000 in 1937. Although both these figures probably understate the total, the 1939 receipts show a sharp increase, and this increase continued in the early months of 1940.

Peoria-Pekin. Data are not available concerning the quantities of grain received by truck at Peoria-Pekin although the total is substantial. Part of their truck receipts is strictly local business; part of it comes from longer distances. Four grain firms, three with water outlets, are active in the trade in addition to certain local feed dealers.

Local milling centers. Some grain and soybeans are trucked to various milling centers in the state, but the quantity is not large because mills at interior points must have inbound railroad tonnage in order to get favorable outbound rates. No up-to-date data are available.

Trucking to feeding areas. This trade is always going on, to a greater or less degree, from surplus to deficit areas. In 1939 it is believed that trucking from surplus areas in Illinois was largely directed south into southern Illinois, Indiana, and Kentucky and north into Wisconsin. Trucks have an advantage in his trade because local freight rates are avoided by direct hauling, especially since these rates are usually relatively high for the distances involved.

Basic reasons for increase in trucking. The two basic reasons for the increase in truck receipts are: (1) availability of a water or truck outlet permitting

the advantageous sale of grain which does not carry good railroad billing and (2) the lower charges for transport by truck than by rail for short and medium distances. The development of firms and facilities to take advantage of the commercial opportunities is purely incidental to these basic cost and profit possibilities. Some long distance trucking of grain represents a back haul load.

Problems created by increase in trucking. Any change in established trade channels creates new problems. Old firms may lose business while new ones emerge and expand. This increases the number of low-volume firms because those with declining business only gradually retire. The increase in the use of trucks in grain marketing will have this effect. If it provides a cheaper method of marketing either alone or in conjunction with river barges, then its use will increase. The orderly way of adjustment to a change is for the older firms to adopt the newer methods so far as practicable. Many adaptations have been made by existing companies to the new transportation methods. Of these the most significant is the organization of a company to operate an elevator on the river at Morris, Illinois by 21 country firms in that area. The local companies use the river outlet for a considerable part of their purchases of grain.

Another problem created by trucking is the possibilities for losses which farmers must bear when their grain moves long distances. Among these possibilities are:

1. Loss in weight because longer hauls are made in high-speed and unsealed trucks.

2. Other losses in transit where the hauler is not trustworthy. Although many truck operators are responsible, there are some people in the business who are not very reliable.

3. Greater risk of payment when goods are sold to persons outside the local community. Cases are on record where farmers have lost substantial sums in this manner. The farmer should know more about the solvency of his local grain buyer than of one at a more remote point; consequently, he takes greater risks when he sells to the latter.

4. In some cases more question can be raised about weights and grades than in cases where grain is delivered locally.

Some of these difficulties could be removed if the farmer sold to his local elevator, and allowed the elevator man to determine the method of transportation and to assume responsibility for it. Local weighing on a reliable scale is desirable. Better truck equipment with sealed truck bodies should eliminate loss in transit.

In determining whether or not to sell grain to a distant point, a farmer should weigh these hazards along with the comparative price, for they may affect his net returns.

L. J. NORTON

RELATIVE AMOUNTS OF GRAIN AND ROUGHAGE USED BY DIFFERENT CLASSES OF LIVESTOCK

Interest is growing rapidly in the profitable use of the increasing amounts of roughage available on Illinois farms. As farm people adopt the best-known soil conservation practices, they necessarily increase very greatly the acreages of land left down in clovers, alfalfa, and grasses. Under present conditions, the most common economical use of these roughages is as feed for livestock.

The fact that different kinds of livestock vary in their ability to use roughage is well-known. The differences in the values and acreages of roughages used by different classes of livestock are shown in studies of records kept by about 600 cooperators in the Farm Bureau Farm Management Service during 1938 and 1939. (Table 1).

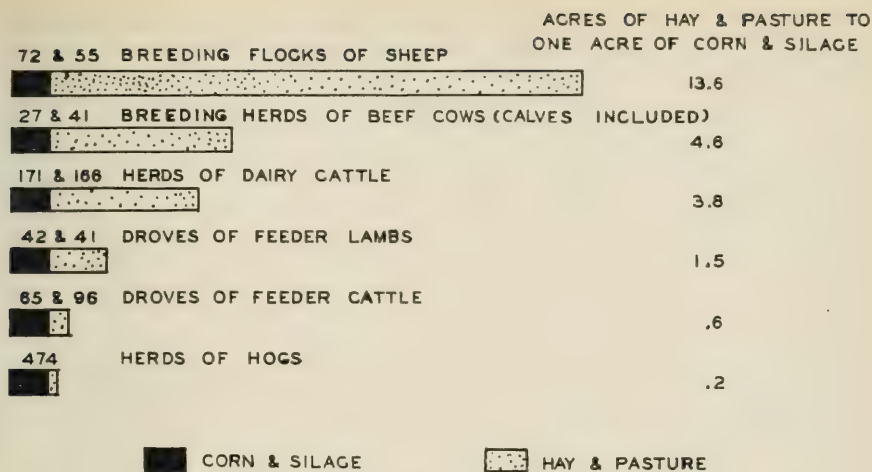


FIG. 1.—ACRES OF HAY AND PASTURE USED WITH ONE ACRE OF CORN AND SILAGE BY DIFFERENT CLASSES OF LIVESTOCK

The averages are for two years; the first number is the number of records in 1938 and the second, the number in 1939.

The cooperators in the Farm Bureau Farm Management Service keep records of the amounts of grain, silage, hay, and pasture fed to each class of livestock. The average percentage value of each class of feed fed to each kind of livestock is shown in Table 1.

In a 2-year average of all farms reporting, breeding flocks of sheep used 75.2 percent of the value of their feed in the form of hay and pasture. This percentage shows that approximately 13.6 acres of hay and pasture were used per acre of corn and silage in furnishing feed for these native flocks of sheep. Feed fed to the lambs until they were sold was included. Several well-handled flocks obtained from 80-90 percent of their feed from hay and pasture.

Breeding herds of beef cows come next to the breeding flocks of sheep in their ability to utilize large acreages of roughages. Including the feeds fed to the calves until they were marketed, the breeding herds of beef cows obtained 21.4 percent of their feed from hay and 29.2 percent from pasture. In all of these calculations, average yields were assumed to be 50 bushels an acre of corn, 10 tons an acre of silage, 2 tons an acre of hay, and 90 animal-unit days per acre of pasture. According to this method of calculation, about 4.6 acres of hay and pasture to 1 acre of corn and silage were required to maintain the breeding herd and to feed the calves for market.

Herds of dairy cattle were found to utilize somewhat less hay and pasture in proportion to the amount of grain and silage than did the beef cow herds. More hay and less pasture was used by the dairy herds. Dairy herds used 26.3 percent of their feed in the form of hay and 19.8 percent in the form of pasture; whereas, beef cow herds utilized 21.4 percent as hay and 29.2 percent as pasture.

Droves of feeder lambs as handled on these north-central Illinois farms utilized hay and pasture amounting to 31.0 percent of the total value of their feed. About 18.2 percent of their feed was hay and about 12.8 percent pasture. Observations on the farms where lambs were fed show that much of their pasture was from young clover and grass in stubble fields, from the aftermath in fields where hay was cut, and from fence rows and grass waterways in grain fields. Some good livestock farmers continue to feed lambs only because the lambs enable them to

TABLE 1. RELATIVE VALUES AND ACREAGES OF GRAIN AND ROUGHAGE USED BY DIFFERENT CLASSES OF LIVESTOCK

Item	Breeding flocks of sheep	Breeding herds of beef cows ^a	Herds of dairy cattle	Droves of feeder lambs	Droves of feeder cattle	Herds of hogs
<i>Number of farm records</i>						
1938.....	72	27	171	42	65	.....
1939.....	55	41	166	41	96	474
<i>Percentage value of feed^b</i>						
Grain.....						
1938.....	21.2	34.9	28.3	62.0	62.3	.....
1939.....	23.0	38.8	31.6	63.4	62.1	76.1
Average.....	22.1	36.8	30.0	62.7	62.2	.....
Silage.....						
1938.....	1.1	8.7	16.7	1.8	9.2	.....
1939.....	1.3	6.6	15.7	.2	9.8	.0
Average.....	1.2	7.6	16.2	1.0	9.5	.....
Hay.....						
1938.....	25.4	22.3	27.7	17.4	10.3	.....
1939.....	23.8	20.6	24.9	19.0	9.1	.2
Average.....	24.6	21.4	26.3	18.2	9.7	.....
Pasture.....						
1938.....	50.3	28.7	20.5	14.4	4.8	.....
1939.....	50.8	29.7	19.0	11.2	5.4	2.3
Average.....	50.6	29.2	19.8	12.8	5.1	.....
<i>Acres of hay and pasture used per acre of corn and silage^c</i>						
1938.....	13.1	4.4	3.8	1.5	.6	.....
1939.....	14.2	4.9	3.8	1.6	.7	.2
Average.....	13.6	4.6	3.8	1.5	.6	.2

^aThe feed fed to breeding herds of cows included all of the feed fed to the calves until they were sold.

^bThe percentage value of feed in protein supplements, salt, and minerals was not included in this analysis.

^cThe relative acreages of hay and pasture and corn and silage were calculated from the percentage value of different feeds as given in this table by using the following prices for feed and yields of crops: 1938 prices—corn \$4.45 per bushel; silage, \$4.75 per ton; hay, \$9.25 per ton; pasture, \$.05 per animal-unit day of pasture—1939 prices—corn, \$.52 per bushel; silage, \$4.50 per ton; hay, \$7.25 per ton; pasture, \$.05 per animal-unit day of pasture—yield of crops—corn, 50 bushels an acre; silage, 10 tons an acre; hay, 2 tons an acre; pasture, 90 animal-unit days per acre.

"cash in" on this roughage from which they would otherwise receive little or no cash value.

Droves of feeder cattle fed on these farms used feed from more than one-half as many acres of hay and pasture as of corn and silage. About 10 percent of the value of their feed was hay, and about 5 percent was pasture. When the value of all grain was converted into acres by using the prices and yields indicated in footnote "c" in Table 1, the results showed that the feeder cattle used feed from an average of .6 acre of hay and pasture to each acre of corn and silage. Of course, the relative amounts of roughages and grains fed to cattle vary greatly with the class of cattle and the method of feeding. Ten lots of feeders purchased as calves and fed largely on grain during the 1938-1939 feeding season utilized roughage from only .16 acre of hay and pasture to 1 acre of grain and silage. On the other hand, thirteen lots of feeders purchased as yearlings and fed heavy rations of pasture and hay during the same year used feed from 1.76 acres of hay and pasture to 1 acre of grain and silage. During this particular season the profits were in favor of the roughage-fed cattle.

Although the amount of roughage utilized by herds of hogs is small, it may well be noted here that many of the most successful hog growers are utilizing relatively large acreages of both hay and pasture. The use of legume pasture for growing pigs is justified from the feed viewpoint as well as from the sanitation viewpoint. Many large hog producers are using increasing amounts of alfalfa hay, which is usually ground, for fall pigs and as winter feed for brood sows.

Livestock production is not the only way of utilizing roughages produced as a byproduct of soil conservation and crop-acreage adjustments. The production of legume and grass seeds may profitably take precedence over meat and milk production in certain areas and to a limited extent in all areas. In some areas

especially those of low land values, and to a certain extent in all areas, especially while land is being built up, many farmers can well afford to grow legumes and grasses for soil conservation purposes only. One who has not handled livestock of any one kind may well proceed cautiously. Twenty-five years of study of farm records lead us to know that a change from grain farming to livestock farming or from one class of livestock to another may best be made slowly. Otherwise, a change is more likely to lower earnings than to increase them. Records show that the least profitable farms as well as the most profitable ones are livestock farms.

M. L. MOSHER

COST OF PRODUCING MILK IN THE CHICAGO AND ST. LOUIS MILKSHEDS

Studies of the cost of producing milk were made in the Chicago milk-producing area during 1936 and 1937 and in the St. Louis milk-producing area during 1938 and 1939. The dairymen who cooperated in keeping records on their dairies were a selected group in that they either were members of dairy herd improvement associations or were sufficiently interested in the performance of their herds to keep records on feed, labor, and other items of cost. Other studies have shown that herds owned by such men have cows with milk production which is above average and milk costs which are below average.

The dairy farms on which the cost records were kept averaged 200-210 acres in size in both areas for each of the four years. However, in the Chicago, or northern Illinois, area there were 134 crop acres per farm, and in the St. Louis, or southwestern Illinois, area there were 121 crop acres. Furthermore, the acre yields of corn, oats, and other feed crops were generally 15 to 20 percent higher on the farms in the northern area than on those in the southwestern area. Influenced, no doubt, by the resulting differences in the total feed production of their farms, dairymen in the Chicago area kept herds averaging 20 milk cows as compared with herds averaging 14 milk cows kept in the St. Louis area.

Costs of producing milk. In 1936 and 1937 the net cost of producing 100 pounds of milk in the Chicago area was \$1.57 and \$1.72, respectively. (Table 1). In 1938 and 1939 the net cost of producing milk in the St. Louis area was \$1.66 and \$1.60 respectively. These milk costs in the two areas, however, cannot be compared since they are for different years and are, therefore, under different feed price-levels. The costs include the expense of maintaining the cow in the herd, whether in milk or dry, but they do not include credits from or expenses on young stock before the first calf.

Within the same area the cost of producing milk from year to year was influenced most by the level of feed prices. The relative costs between areas the same year, however, were influenced not only by local feed prices but also by the level of milk production of cows in each area. Although milk costs were not collected in both of these areas in the same year, the general price-level of feeds which were fed to cows in the St. Louis area in 1938 was lower than the price level of feeds during 1936 in the Chicago area; yet the net cost of producing St. Louis milk was above the cost of producing Chicago milk because milk production per cow on farms in the Chicago area was 630 pounds higher than that of cows in the St. Louis area.

Relation of milk production per cow to costs and profits. The cost of production, per 100 pounds of milk, tended to be lower and profits tended to be higher as the average production of cows in the herd increased. (Table 2). On the farms in this study during every year except 1936, the first 7,500 pounds of milk from the average cow just paid for keeping a cow. In 1936 in the Chicago area, however, 7,300 pounds of milk at the wholesale market price just paid

TABLE 1.—COSTS OF AND RETURNS IN PRODUCING MILK

Items	Average for 100 pounds of milk			
	Chicago area		St. Louis area	
	1936	1937	1938	1939
Cost items				
Feed and bedding	\$.85	\$.97	\$.78	\$.71
Man labor	.29	.32	.42	.41
Milk hauling	.10	.10	.19	.20
Buildings, power, and equipment	.16	.15	.14	.13
Cow depreciation, interest, and mortality	.11	.12	.06	.07
Bull cost	.05	.05	.05	.04
All other costs	.16	.16	.18	.17
Total costs	\$ 1.72	\$ 1.87	\$ 1.82	\$ 1.73
Credits other than milk ^a	.15	.15	.16	.13
Net cost of milk sold wholesale	\$ 1.57	\$ 1.72	\$ 1.66	\$ 1.60
Wholesale price of milk	\$ 1.77	\$ 1.93	\$ 1.86	\$ 1.71
Return per hour of man labor	.34	.37	.34	.29
Milk production per cow, pounds	8 274	8 362	7 644	7 856
Farm prices per ton				
Corn-and-cob meal	\$20.77	\$28.02	\$13.28	\$12.22
Hay	11.84	15.18	7.97	7.78

^aCalves, manure, sale of sacks, increase in value of cows.

TABLE 2.—RELATION OF MILK PRODUCTION PER COW TO COSTS AND PROFITS

Pounds in milk production groups ^a	Average pounds of milk per cow	Feed cost per 100 pounds of milk	Total cost per 100 pounds of milk	Profit per cow
Chicago Area				
1936				
9,000-10,000	9 487	\$.79	\$1.40	\$20
7,000- 8,000	7 607	.93	1.68	10
Under 6,000	5 486	1.16	2.06	-8
1937				
9,000-10,000	9 369	.91	1.66	22
7,000- 8,000	7 553	.99	1.80	13
Under 6,000	5 440	1.17	2.31	-19
St. Louis Area				
1938				
9,000-10,000	9 393	.66	1.50	47
7,000- 8,000	7 532	.73	1.60	12
Under 6,000	5 375	.93	1.94	-13
1939				
9,000-10,000	9 450	.62	1.42	30
7,000- 8,000	7 554	.70	1.56	3
Under 6,000	5 597	.83	1.93	-14

^aThe groups producing 6,000-7,000 and 8,000-9,000 pounds of milk have been intentionally left out of the table to save space. The same tendencies were apparent in these classifications.

for the cost of keeping a cow. Several herds with milk of high butterfat content and with average milk yields below 7,000 pounds showed a profit because the average sale price of their milk was materially raised by the butterfat premium.

Feed and labor: largest items of cost. With ground corn-and-cob meal at \$21 a ton in 1936 and with other dairy feeds at the same relative level, the feed cost was 54.3 percent of the farmer's cost of milk in the Chicago area. Man labor used in milking, feeding, cleaning, and doing other work about the barn and milk house was 18.5 percent of the milk cost. In 1937 the average price of ground corn in the area was \$28 a ton. That year feed was 56.1 percent of all milk costs, and man labor was 18.4 percent. For the two years feed and labor combined amounted to 72.8 percent and 74.5 percent respectively of the cost of producing milk. (Table 3).

With ground corn-and-cob meal at \$13 a ton and other feeds at the same relative level in the St. Louis milk-producing area in 1938, feed made up 47.2 per-

TABLE 3.—AMOUNTS OF FEED AND MAN LABOR USED IN PRODUCING MILK

Items	Average per 100 pounds of milk			
	Chicago area		St. Louis area	
	1936	1937	1938	1939
Pounds of feed.....				
Grain.....	23	22	22	23
Millfeeds and protein feeds.....	6	4	10	8
Roughage.....	36	33	40	47
Silage.....	79	92	53	50
Pasture days.....	2	2	2	2
Hours of man labor.....	1.4	1.4	1.8	1.8
Percent feed and labor was of net cost.....	72.8	74.5	72.4	70.0

cent of the cost of producing milk. In 1939 the average price of ground corn-and-cob meal was \$12, and feed was 40.9 percent of all milk costs. Dairymen in southwestern Illinois spent about 20 more man hours in and around the barns per year for each milk cow than did those in northern Illinois. Man-labor cost in the southwestern area, therefore, was 25.3 percent of milk cost in 1938 and 25.7 percent in 1939.

Wide variations in cost from farm to farm. The cost figures given in the accompanying tables are the average for a relatively large number of dairymen. It is very seldom, however, that two dairymen have the same costs. For example, a typical variation in costs between dairymen occurred in the St. Louis area in 1939 when the extreme variations from farm to farm in the important items of cost per cow were as follows: feed, from \$33.87 to \$92.63; man labor, from \$12.65 to \$55.73; hauling of milk and cream, from \$1.96 to \$32.23; and annual gain or loss in the average value per cow, from a gain of \$15.00 to a loss of \$22.62. These variations in individual items of cost show that there is considerable opportunity to lower the cost of producing milk on these farms by improving the herd management.

R. H. WILCOX

TAX FORECLOSURE TO ELIMINATE TAX DELINQUENCY

Since 1932, Illinois farmers have been interested in local tax delinquency. Many of them have paid high taxes and have looked on with mixed feelings of sympathy and resentment, while their neighbors, both in town and on the farm allowed their taxes to go delinquent. Farmers have come to realize that increased delinquency means higher taxes for those who pay. With this realization has come a widespread demand for some method that will force all property to pay its share of governmental costs and that will, incidentally, collect back taxes.

The ordinary tax sale at which the tax lien is offered has not proven satisfactory during the past few years. Tax lien purchasers are usually more interested in the high interest rates obtained when owners pay the tax lien than in obtaining title to the property. In the depression years, people were unable to pay tax liens and tax buyers either withdrew from the business or found themselves burdened with unsalable liens. Those persons purchasing tax liens in order to obtain a tax title or deed often found—due to the many legal loopholes—that these deeds were little more than clouds on the title, and that too frequently the former owner could successfully contest their validity. As a result, a large volume of property was “forfeited to the State.” The term “forfeited to the State” merely indicates that taxes were not paid by the date of the tax sale. The State receives no record of forfeited properties and it maintains no facilities for the collection of these or the administration of the properties.

Although a "forfeited" property may be occupied and served by all the various public facilities and services, it contributes nothing toward public revenue. Unpaid taxes and penalties accumulate rapidly, often resulting in a situation in which the taxes are almost certain not to be paid. An illustration is a case in Mason County where current taxes amounted to only \$7, while back taxes and costs amounted to over \$700, the total outstanding taxes far exceeding the value of the property. This situation exists in many parts of the State and practically no attempts have been made to relieve it. As a result, many counties have serious tax-delinquency problems. In order to obtain sufficient revenue, tax rates are raised and the burden on those persons paying their taxes is increased. Because of this, many people have been looking for some method of alleviating this situation.

A little-used but highly effective method provided by the Illinois Statutes for collection of delinquent taxes is the "action to foreclose the tax lien," the use of which is discretionary. Taxes on a property must, however, be delinquent and forfeited to the State for two years before such action can be taken. The procedure used is similar to that for foreclosure of liens in equity and protects the property owner who is temporarily unable to pay but intends to pay his taxes.

To institute action for foreclosure of the tax lien, one or more of the taxing bodies must request that such action be taken. It is then the duty of the State's Attorney, or of some duly hired or appointed agent of the taxing body, to institute an action of foreclosure in the Circuit Court. The action will be for the sum of all taxes and special assessments plus costs and penalties accumulated against the delinquent property.

The tax-foreclosure proceeding is similar to that for foreclosure of a mortgage. A summons is issued to the owner and all interested parties. If any owners cannot be located, notice of suit must be published in a paper of general circulation in the county. After due notice has been given, the Circuit Court enters a judgment against the land for the amount of the delinquencies and orders the sale of property at public auction. The sale must be advertised, such advertisements containing the names of plaintiffs and defendants and the legal description of the property. A public sale can then be held as advertised, and the property sold to the highest bidder. The purchaser pays the County Treasurer the amount of his bid, and a receipt is given him by the Treasurer. The sale must, however, be made by the County Collector, as the Illinois Constitution provides that only the tax collector may sell property for taxes.

The sale must next be approved by the Circuit Court. If approved, a certificate of sale giving a description of the property and the amount paid is issued to the purchaser. The officer making the sale must file a duplicate of the certificate in the County Recorder's office within ten days after the sale.

After the sale, the interested persons or owners have two years in which to redeem. It is important to note that the redemption is for the amount bid at the sale plus 6 percent interest rather than the total taxes, penalties, and costs due on the property. The bid price may be more or less than the amount of the judgment for taxes and costs against the property. In a case where property is sold for more than the amount of the judgment and costs, the balance at the end of the redemption period is paid to the former owner or interested parties. If the amount of the sale is less, the amount collected is distributed to the taxing bodies in proportion to their claims.

After expiration of the redemption period of 2 years and up until 5 years from the date of sale, the purchaser may secure a deed executed by the sheriff or master, carrying the right, title, and interest of the previous owner. This deed is granted free from all encumbrances, mortgages or other liens being cancelled by such a sale. Holders of such liens can protect their interests only by paying the tax lien or purchasing the property at the sale.

This procedure was used in Cumberland County, Illinois with outstanding

success. Owners paid taxes on nearly three-fourths of the properties when notified that tax-foreclosure action would be started. On the 103 parcels on which action for foreclosure was started, 50 were redeemed by owners and of the remainder, over two-thirds were placed in hands of new purchasers. The County collected over three-fourths of the total delinquent taxes and costs and obtained clear title to the remaining tracts not purchased by individuals. These consisted entirely of town lots which the county itself purchased at the tax-foreclosure sale and is now selling through local real estate firms.¹

The most important result of this experiment in tax foreclosure was in placing 90 percent of the delinquent tracts in the hands of owners who were more likely to pay future tax assessments. On many of these properties no taxes had been paid for 8 or 9 years and these would not likely have been redeemed, since many were not worth the amount of taxes and penalties due. The use of the tax-foreclosure procedure aided in collection of future tax assessments by showing people that there was a tax-collection procedure whereby they would lose their property if they did not pay their taxes. Officials state that since this procedure was started, tax delinquency has practically ceased to exist in the county, amounting to less than 2 percent in 1938. This result in itself is of major importance as it means local taxing bodies will receive funds as needed, thereby making it possible to pay bills promptly without borrowing. Moral effects of the procedure were also valuable and will probably make its use unnecessary for at least a considerable period of time.

Study of the tax foreclosure procedure and the effects where it has been used would indicate the advisability of more widespread use. Both counties and cities or villages may find it profitable to use this means of clearing up tax delinquency which, at the same time, increases incomes by collection of back taxes and increases tax assessments collectible by reincluding in the active tax base properties formerly hopelessly insolvent. This in turn should reduce the tax rates which those properties now paying taxes must bear, as all property will bear more nearly its share of the total tax load.

G. H. WALTER

¹A minimum sale price based on actual sale value was placed on each property by the county finance committee. If no bids were received or bids were below the minimum set by the committee, the property was bid in by the county as trustee. No funds were advanced by the county. When the property is sold, funds are pro-rated on the basis of each taxing body's claim.

Footnotes for the following page:

¹⁻¹²The first source is for annual data; the second is for current data from which tables may be brought to date.

¹Survey of Current Business, 1936 supplement, U.S. Dept. of Commerce; subsequent monthly issues. ²Same as footnote 1. ³Illinois Crop and Livestock Statistics, Circular 438 (1937); monthly mimeographs of Statistical Tables for Illinois Crop Report, converted from 1910-14 = 100 to 1924-29 = 100 by multiplying by .7151. ⁴Agricultural Situation, Bureau of Agricultural Economics, U.S.D.A.; Agricultural Situation, converted from 1910-14 = 100 to 1924-29 = 100 by multiplying by .6486. ⁵Calculated from data furnished by Bureau of Agricultural Economics; Survey of Current Business, seasonally adjusted. ⁶Calculated by Department of Agricultural Economics, University of Illinois, seasonally adjusted. Data from Farm Income, Bureau of Agricultural Economics; B.A.E. monthly mimeograph. Receipts from Sale of Principal Farm Products (government payments not included). ⁷Obtained by dividing Index of Illinois Farm Income (column 6) by Index of Prices Paid by Farmers (column 4). ⁸Monthly Indexes of Non-Agricultural and National Income, Supplement, August, 1937, B.A.E.; Price and Demand Situation, or Agricultural Situation. ⁹Survey of Current Business, 1938 Revision; subsequent monthly issues, unadjusted for seasonal variation. ¹⁰Federal Reserve Bulletin of Federal Reserve Board, September, 1933 and subsequent issues; Survey of Current Business, seasonally adjusted. ¹¹Preliminary estimate. ¹²Illinois Crop and Livestock Statistics, Cir. 438; Monthly price releases, State Agricultural Statistician.

TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural income ⁸	Factory payrolls ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. In money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period.....	1926	1926	1924-29	1924-29	1924-29	1924-29	1924-29	1924-29	1923-25	1923-25
1929.....	95	105	104	99	103	103	104	107	110	119
1930.....	86	88	89	94	83	87	93	100	89	96
1931.....	73	65	62	80	58	58	72	87	68	81
1932.....	65	48	41	69	43	43	62	68	47	64
1933.....	66	51	45	71	49	51	72	63	50	76
1934.....	75	65	61	80	57	55	69	72	64	79
1935.....	80	79	82	81	64	65	80	77	74	90
1936.....	81	81	86	80	74	82	102	90	86	105
1937.....	86	86	96	84	80	86	102	95	102	110
1938.....	79	69	69	80	72	81	101	88	78	86
1939.....	77	65	65	78	72	...	...	93	91	105
1939 May.....	76	64	65	78	70	82	105	91	85	92
June.....	76	62	62	78	64	72	92	92	87	98
July.....	75	63	61	78	63	67	86	92	84	101
August.....	75	61	58	77	66	60	78	93	90	103
Sept.....	79	69	71	79	74	73	92	93	94	111
Oct.....	79	67	67	79	76	80	101	95	102	121
Nov.....	79	67	67	79	76	86	109	96	102	124
Dec.....	79	68	66	79	79	...	...	97	104	128
1940 Jan.....	79	69	68	79	79	...	...	96	98	119
Feb.....	79	68	67	79	83	...	...	95	98	109
Mar.....	78	68	66	79	76	...	...	95	98	104
Apr.....	79	69	67	80	82 ¹¹	...	...	94	96	102 ¹¹
May.....	78 ¹¹	69 ¹¹	69	80	...	...	...	...	...	105 ¹¹

TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS¹²

Product	Calendar year average			May 1939	Current months		
	1924-29	1938	1939		March	April	May
Corn, bu.....	\$.81	\$.45	\$.43	\$.44	\$.51	\$.54	\$.60
Oats, bu.....	.42	.24	.28	.29	.38	.38	.35
Wheat, bu.....	1.30	.68	.67	.68	.93	.97	.87
Barley, bu.....	.66	.53	.41	.41	.46	.48	.47
Soybeans, bu.....	1.94	.75	.74	.85	1.00	.97	.92
Hogs, cwt.....	9.97	8.06	6.56	6.60	4.90	4.95	5.50
Beef cattle, cwt.....	8.57	7.68	8.18	8.50	8.10	8.20	8.40
Lambs, cwt.....	12.22	7.76	8.18	8.70	8.60	8.90	8.90
Milk cows, head.....	78.00	60.00	63.00	63.00	64.00	65.00	65.00
Veal calves, cwt.....	11.27	8.89	9.15	8.80	10.00	9.50	9.70
Sheep, cwt.....	6.52	3.36	3.44	3.60	3.70	3.70	3.60
Butterfat, lb.....	.42	.25	.23	.20	.26	.26	.25
Milk, cwt.....	2.32	1.66	1.59	1.40	1.60	1.55	1.50
Eggs, doz.....	.30	.19	.16	.13	.14	.13	.14
Chickens, lb.....	.21	.15	.13	.14	.12	.13	.14
Wool, lb.....	.36	.21	.25	.22	.30	.28	.30
Apples, bu.....	1.59	.95	1.07	1.45	1.15	1.25	1.35
Hay, ton.....	13.38	7.65	6.05	6.20	7.00	7.00	7.70
Potatoes, bu.....	1.39	.73	.80	.85	.90	.90	.90

¹⁻¹²For sources of data in tables see previous page.

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G. L. Jordan, Editor

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Number 62

MAINTAINING STABILITY IN THE MARKET-MILK INDUSTRY THROUGH THE USE OF FLEXIBLE PRICES

In view of the increasingly active part taken by state and federal governments in establishing prices to be paid milk producers, certain questions arise, such as: "Is there a practical mechanism for establishing producer prices which is sufficiently flexible to adjust prices upward or downward as rapidly as changing business conditions make desirable?"

Would such a plan have worked under the conditions of rapidly changing prices from 1915 to 1940? Is a plan available which will be helpful both in increasing milk consumption and in protecting producers' interests?"

Correct answers to such questions are imperative, particularly when we realize (1) that, under customary procedures, neither a bargaining association nor a governmental agency¹ can adjust prices upward or downward as rapidly as changing business conditions make necessary and (2) that growth of corporate forms of distribution and labor unions have resulted in the development of bargaining associations and, in some cases, in the development of governmental agencies in order to prevent or curb destructive competition.²

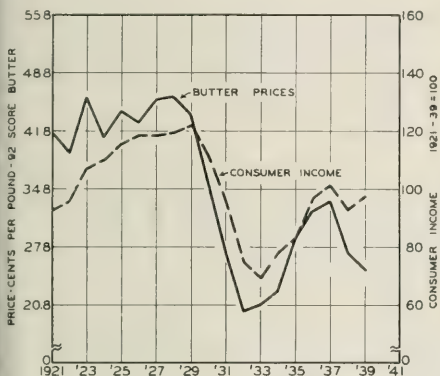


FIG. 1.—CHANGES IN AVERAGE PRICES OF CHICAGO 92-SCORE BUTTER COMPARED WITH CHANGES IN CONSUMERS' INCOME IN THE UNITED STATES, FROM 1921 TO 1939

The Importance of Butter Prices in Arriving at Market-Milk Prices. Many dairymen and consumers ask: "Why is so much importance placed upon butter prices in arriving at the price of market milk?"

The reason for this emphasis is that butter prices constitute the best index available for measuring changes in supply and demand conditions for the dairy industry.

In the first place, we find that changes in consumers' incomes are quickly reflected in changes in butter prices (Fig. 1). Thus, from 1921 to 1939, the correlation between the average income per consumer and butter prices was .87.

In the second place, we find that prices paid to producers for milk to be

¹In 1939, 17 cooperative collective milk bargaining associations operating in Illinois together had 19,400 active members and sold \$30,092,000 worth of milk. (From Illinois Agricultural Association Annual Report, 1939, pp. 50 and 51.)

At present some 20 state governments are taking an active part in the establishment of prices to be paid producers, and similar action is being taken by the federal government in 25 or more interstate markets. St. Louis, Chicago, and Rock Island and Moline each operate under a Federal Milk Order along with a bargaining association.

²Bartlett, R. W., *Cooperation in Marketing Dairy Products*, 1931, pp. 19 and 20. Also Hoards Dairyman, Vol. 80, No. 6, *Problems in the Fluid Milk Industry*, 1935, pp. 139, 148, and 153.

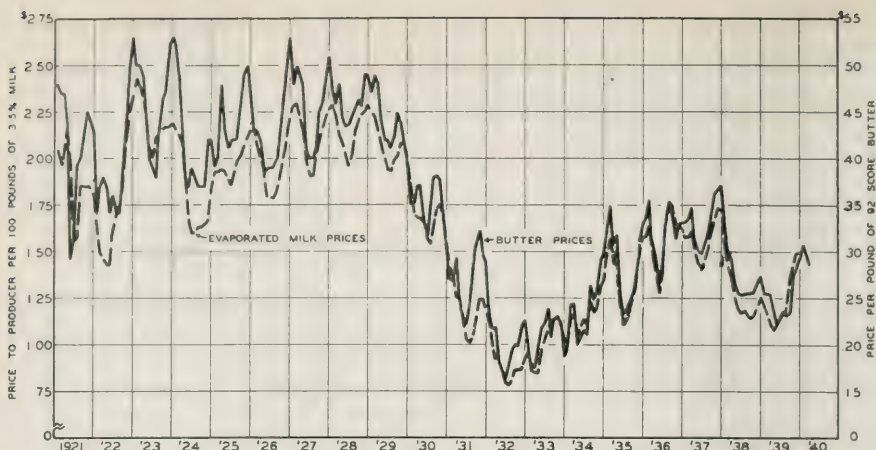


FIG. 2.—CHANGES IN AVERAGE PRICES OF CHICAGO 92-SCORE BUTTER COMPARED WITH CHANGES IN PRICES PAID PRODUCERS FOR 3.5 PERCENT MILK AT CONDENSERIES IN THE EAST NORTH-CENTRAL STATES, BY MONTHS, FROM 1921 TO 1940

condensed or to be made into cheese or ice cream necessarily must be kept in line with butter prices since about three-fourths of all the milk manufactured is used for butter and since milk can easily be shifted from one manufacturing use to another. Prices paid to producers for milk condensed or made into cheese have kept closely in line with butter prices (Figs. 2 and 3). The correlation between condensery prices and butter prices from 1921 to 1939 by months was .98 as compared with .96, the correlation between cheese and butter prices during this same period. If we remember that a perfect correlation is 1.00, these coefficients indicate the high degree of relationship which has existed between the prices of condensery milk and butter and those of cheese and butter.

And finally, we find that, for the country as a whole, only about 30 percent of

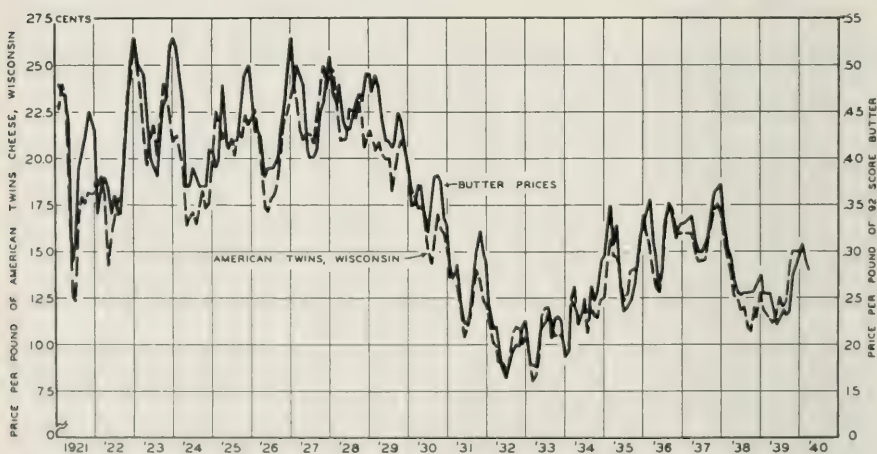


FIG. 3.—CHANGES IN AVERAGE PRICES OF CHICAGO 92-SCORE BUTTER COMPARED WITH CHANGES IN AVERAGE PRICES OF AMERICAN TWINS CHEESE, WISCONSIN, BY MONTHS, FROM 1921 TO 1940

the total milk supply is consumed as market milk, and that about 50 percent of the total volume of milk in most fluid markets is sold as sweet cream or is manufactured into products sold on the basis of butter prices.

Price Flexibility Versus Rigidity in the Chicago and the St. Louis Milk Areas. Under competitive conditions, changes in the prices paid producers

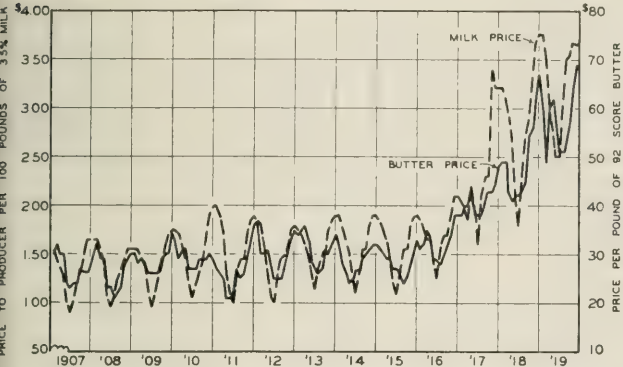


FIG. 4.—CHANGES IN AVERAGE PRICES OF CHICAGO 92-SCORE BUTTER COMPARED WITH CHANGES IN THE AVERAGE COUNTRY PLANT PRICES RECEIVED FOR 3.5 PERCENT MILK BY MARKET MILK PRODUCERS, CHICAGO, BY MONTHS, FROM 1907 TO 1919

indicated before, these coefficients indicate the high degree of relationship which has existed between market-milk prices and butter prices in Chicago and St. Louis.

In contrast to the highly flexible prices which have existed under competitive conditions, the introduction of artificial price-mechanisms have tended to disrupt this price flexibility and to cause producer prices to be lower or higher than they naturally would be. For example, from January, 1920, to October, 1935, the prices paid producers for market milk in Chicago were frequently held at a level either too low or too high when these prices are compared with butter prices (Fig. 6). Thus, the correlation between Chicago milk prices and butter prices

for market milk in the Chicago and the St. Louis dairy districts have kept very closely in line with changes in butter prices (Figs. 4 and 5). The correlation between the prices paid producers for 3.5 percent milk at receiving plants in the Chicago area and the prices of 92-score butter at Chicago from 1907 to 1919 by months was .93. The correlation between the prices to St. Louis market-milk producers and the butter prices in Chicago from 1909 to 1929 was .95. Since a perfect correlation is 1.00, as we

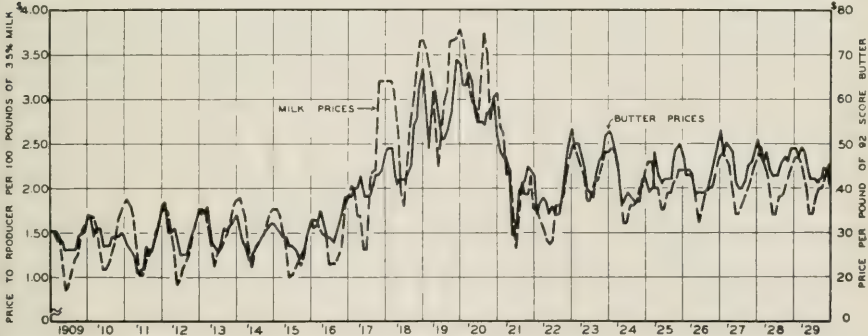


FIG. 5.—CHANGES IN AVERAGE PRICES OF CHICAGO 92-SCORE BUTTER COMPARED WITH CHANGES IN AVERAGE COUNTRY PLANT PRICES RECEIVED FOR 3.5 PERCENT MILK BY MARKET MILK PRODUCERS IN ST. LOUIS, BY MONTHS, FROM 1909 TO 1929

from 1920 to 1929 by months was only .66 as compared with .93 from 1907 to 1919.¹ During this later period, particularly from 1923 to 1930, late fall or early winter prices paid producers for milk were too low in comparison with spring and summer prices. For the period January, 1920, to October, 1935, the correlation between Chicago milk prices and butter prices averaged .80.

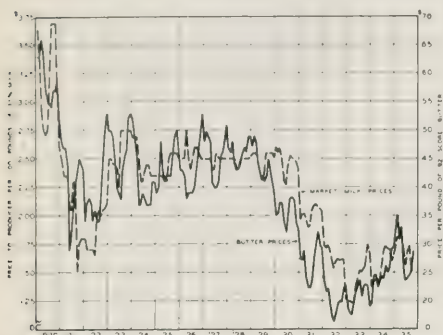


FIG. 6.—CHANGES IN AVERAGE PRICES OF CHICAGO 92-SCORE BUTTER COMPARED WITH CHANGES IN THE AVERAGE COUNTRY PLANT PRICES RECEIVED FOR 3.5 PERCENT MILK BY MARKET MILK PRODUCERS, CHICAGO, BY MONTHS, FROM 1920 TO OCTOBER, 1935

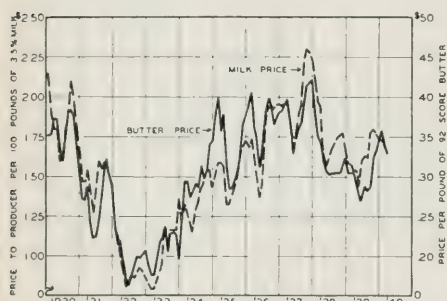


FIG. 7.—CHANGES IN AVERAGE PRICES OF CHICAGO 92-SCORE BUTTER COMPARED WITH CHANGES IN AVERAGE COUNTRY PLANT PRICES RECEIVED FOR 3.5 PERCENT MILK BY MARKET MILK PRODUCERS, ST. LOUIS, BY MONTHS, FROM 1930 TO 1940

Since 1930, market-milk prices in the St. Louis area have been less flexible than they were previously. Thus, the correlation between St. Louis milk prices and butter prices from January, 1930, to April, 1940, (Fig. 7) was .78 as compared with .95 from 1909 to 1929. This increased rigidity in market-milk prices can be attributed primarily to the use of rigid Class I prices which have been held either too low in the fall or winter months when compared with spring or early summer prices, or at a level too low or too high for the year as a whole.

During the past two or three years, milk has been scarce in the St. Louis area, especially in certain months.² This scarcity indicates that milk prices, at least during the shortage season, have been too low during this more recent period.

Actual and Code Prices for Condensery Milk. Since the federal code price for condensery milk (first used in September, 1933) is now used as the basis for arriving at the Class I price in several Illinois markets, including Chicago, Peoria, Rockford, and Bloomington and since it is being considered in other markets, certain questions may be raised, such as: "How is this price derived?" "Is it economically sound?"

Under the federal evaporated milk code, the minimum monthly prices to be paid producers for condensery milk in the east north-central states are derived from the following formula:

$$\frac{\text{Chicago 92 score butter price} \times 6 + \left(2.4 \times \frac{\text{Wisconsin twins cheese price}}{\text{cheese price}} \right)}{7} \times 3.5 + 30\%$$

¹Normally a higher correlation is expected when rapid changes are made in the general price structure than when a fairly constant level of prices prevails. This is one reason why the correlation from 1907 to 1919 was higher.

²In recent years at least one large dealer in this area has been forced to haul milk from a plant 300 miles from St. Louis in order to obtain a supply sufficient to meet his market demand.

In this formula, $\frac{6}{7}$ of the condensery price is based upon butter prices, and the other $\frac{1}{7}$ is based upon cheese prices. In 1938, 44 percent of the total milk supply in the United States was made into butter and 7 percent into cheese. Hence, these proportional weightings appear to be reasonable.

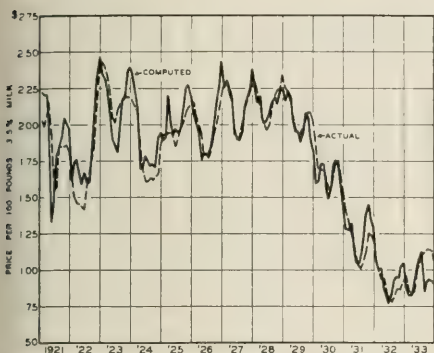


FIG. 8.—CHANGES IN ACTUAL PRICES PAID PRODUCERS FOR 3.5 PERCENT MILK AT CONDENSERIES IN THE EAST NORTH-CENTRAL STATES COMPARED WITH PRICES COMPUTED ON THE BASIS OF THE FEDERAL EVAPORATED MILK CODE, BY MONTHS, FROM 1921 TO 1939

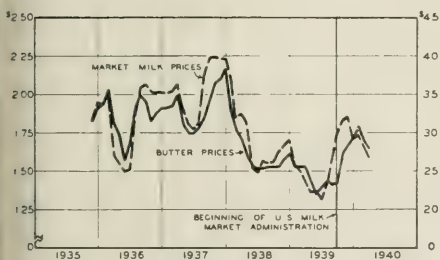


FIG. 9.—CHANGES IN AVERAGE PRICES OF CHICAGO 92-SCORE BUTTER COMPARED WITH CHANGES IN AVERAGE COUNTRY PLANT PRICES RECEIVED FOR 3.5 PERCENT MILK BY MARKET MILK PRODUCERS, CHICAGO, NOVEMBER, 1935 TO 1940

during over three-fourths of the time. In 1939, premiums above the code price were paid in 11 out of the 12 months, and they ranged from 1 cent to 17 cents per 100 pounds, and averaged 3.7 cents.

Determination of Chicago Milk Prices Under a Flexible Price Plan. In November, 1935, the Pure Milk Association in Chicago adopted the forward-looking policy of establishing the Class I (or base) price for milk directly upon condensery prices, with the understanding that premiums above these prices would be adjusted upward or downward as supply and demand conditions

Since condensery prices to producers are based upon milk with a butterfat content of 3.5 percent, the combined butter and cheese price is multiplied by 3.5. The 30 percent added to this price represents the skimmilk value plus extra costs for transporting whole milk. Costs for hauling cream efficiently usually are around 2 cents per pound of butterfat, and the usual costs for hauling condensery milk average from 4 to 5 cents per pound of butterfat.

Is the federal evaporated milk code economically sound? An analysis has indicated (1) that the use of this code has not led to artificially high prices even though the "bottom" established by them is probably slightly higher than it would have been without the use of the code and (2) that canned-milk consumption has increased materially in recent years, the consumption for 1939 being 16.6 pounds per person, or 29 percent higher than that of 1933.

Actual prices paid condensery producers from 1921 to 1932, the 12-year period preceding the use of formula prices, averaged \$1.800 per 100 pounds of 3.5 percent milk as compared with \$1.827, the prices producers would have received had the minimum code prices been paid (Fig. 8). This comparison indicates that the "bottom" of code prices was slightly higher than were actual prices received.¹ Further analysis, however, has shown that producers have been paid a premium above the code price in 59 out of the 76 months from September, 1933, to December, 1939, or

In 1939, premiums above the code price were paid in 11 out of the 12 months, and they ranged from 1 cent to 17 cents per 100 pounds, and averaged 3.7 cents.

¹The correlation between actual and code prices from January, 1921, to August, 1933, was .90. This indicates the high degree of relationship which existed between these two factors for this period.

warranted.¹ At various times since then, the Class I (base) price has been 30, 35, 50, 53, 58, 60, 65, and 75 cents above the condensery price, the price depending upon varying conditions which have existed in this market. Premiums have reflected local conditions, while changes in condensery prices which are based largely on butter prices, have reflected changes in consumer incomes and milk supplies. The correlation between Chicago market-milk prices and butter prices from November, 1935, to August, 1939, was .92 (Fig. 9). This correlation can be compared with .66 for 1920 to 1929 and .80 for 1920 to 1935—periods in which prices were less flexible at many times.

On September 1, 1939, the flexible-price plan was incorporated as part of the Federal Order, which then became effective in the Chicago market. Under this order, dealers now pay the following premiums above the federal code price for condensery milk.

	Class I (Whole milk)	Class II (Cream) ²
	(Cents per 100 pounds of milk)	
July to November.....	70	32
December to April.....	55	25
May to June.....	45	20

The price for Class III milk made into condensed milk is the average price paid by 18 specific condenseries as listed in the Federal Order.³ The price for Class IV milk made into butter is the price of Chicago 92-score butter times 3.5 plus 20 percent.

The minimum condensery price arrived at by the federal code for May, 1940, was \$1.233 per 100 pounds of 3.5 percent milk. Hence the Class I price for May, f.o.b. the country plant, was \$1.683 and the Class II price, \$1.483. The May, 1940, price for Class I milk was 40 cents per 100 pounds less than that for November, 1939. This difference resulted from the lower premium (45 cents instead of 70 cents) and a lower butter price.

Proceeds from the sale of milk under the Federal Order are pooled, and all Grade A producers receive the same blend price subject to butterfat and transportation differentials.

What about the workability of the flexible-price plan under conditions of changing prices?

The responsiveness of this plan to changing economic conditions was well illustrated last fall when improved demand resulting from the outbreak of the European War caused a sharp rise in butter prices and an immediate 18-cent increase in the condensery code price. In the same way, reductions in butter prices from 37 cents per pound in December, 1937, to 25 cents per pound in June, 1938, were immediately reflected in lower prices to producers. In the opinion of some dairy leaders, the use of this plan prevented a milk strike in the Chicago area in 1938 because many farmers in this area knew that the principal cause of the lower prices was lower butter prices and not unreasonable demands of those buying their product.

Under a flexible-price plan established under a Federal Order, can artificially high prices be prevented?

As long as new producers are permitted to enter the market at any time and as long as old producers are permitted to increase their production, any attempt to establish artificially high prices will soon be thwarted through over-production. Facts pertaining to total milk production, changes in the number of producers,

¹Premiums above condensery prices are necessary to pay for the extra costs of meeting the quality requirement and to insure a uniform supply of milk throughout the year.

²Originally, the premiums were 32, 28, and 25 cents respectively, but they were reduced to the present basis, effective July 1, 1940.

³Originally, condensed milk was paid for at the federal code price. Under the present plan the price paid for milk in this use includes premiums paid above the code price.

TABLE 1.—HOME DELIVERED AND STORE PRICES OF MILK IN CHICAGO AND NEW YORK CITY, 1925-1939

Prices given are expressed as cents per quart.

Year	Chicago ¹			New York ²		
	Home delivered price	Store price	Net difference	Home delivered price	Store price	Net difference
1925.....	14.0	14.0	0-	14.8	10.1	4.7
1926.....	14.0	14.0	0-	15.0	10.0	5.0
1927.....	14.0	14.0	0-	15.3	11.7	3.6
1928.....	14.0	14.0	0-	15.6	10.6	5.0
1929.....	14.0	14.0	0-	16.0	11.0	5.0
1930.....	13.9	13.9	0-	15.7	10.7	5.0
1931.....	13.0	12.6	.4	14.7	10.4	4.3
1932.....	11.3	10.9	.4	11.9	8.9	3.0
1933.....	9.8	9.8	0-	11.1	9.1	2.0
1934.....	9.5	8.0	1.5	12.6	10.5	2.1
1935.....	10.6	9.9	.7	13.0	11.0	2.0
1936.....	11.4	10.4	1.0	13.1	11.0	2.1
1937.....	12.5	11.5	1.0	12.6	9.7	2.9
1938.....	12.4	10.9	1.5	13.1	9.4	3.7
1939.....	11.7	9.5	2.2	13.6	11.1	2.5
1940 ³	13.0	8.5	4.5	14.8	11.0	3.8

¹Data from United States Department of Agriculture Fluid Milk Reports.

²Data from 1925 to 1932 from Legislative Document (1933) New York State No. 114, page 248. Store prices from 1925-1932 based upon those for loose milk. Data from 1933 to 1938 from New York State College of Agriculture and United States Department of Agriculture, AE-237, December, 1938, page 2. Data for 1939 and 1940 same source as footnote 1.

³Data from January to June.

daily production per farm, and total milk sales are published currently by the Milk Market Administration in Chicago. Similar facts have been published for 6 years by the Milk Market Administration in St. Louis.

In the final analysis, under the present flexible-price plan in Chicago, the prices received by producers will be determined by the collective judgment of dairymen in this area as measured by their production in relation to demand. Vigilant consumer groups, as well as other groups, can be on the alert to analyze facts made available currently, and they can present the results of their findings at public milk hearings, through newspapers, and through specialized group meetings.

The availability to all groups of facts which show market-wide changes in production, consumption, and prices and which are made possible under a Federal Order stands out in sharp contrast with the lack of such information in Chicago prior to September 1, 1939. Although certain groups, such as the Chicago Milk Dealers, Incorporated, or the Pure Milk Association, knew these facts for their own organizations, market-wide facts in this earlier period were not available to anyone.

Effects of the Chicago Federal Order Upon Consumer Prices and Milk Consumption. When the Federal Order went into operation in Chicago in September, 1939, many people prophesied that the order would raise consumers' prices materially and would lower milk consumption. What have been the facts concerning consumer prices and changes in the volume of milk sales?

In September, 1939, when the Federal Order first went into effect, people in Chicago each consumed .59 pint of milk daily on the average. This amount can be compared with .54 pint daily consumed in May, 1934.¹ In April, 1940, Chicago milk consumption, including relief milk, was 7.4 percent higher than it was in September, 1939.² Although several factors have contributed to this increase

¹Ill. Agr. Exp. Sta. Bul. 412, Table 18, p. 161, 1935.

²Chicago Federal Milk Market Administrator Reports, p. 5, May, 1940.

in consumption, it can be attributed mainly to low prices resulting from the December, 1939, United States Supreme Court decision upholding the validity of the monopoly investigations of the Department of Justice¹ and to the program of dispensing milk to those on relief under the Federal Order.

Since January, 1940, milk has been available to consumers at stores throughout Chicago for 8.5 cents per quart. With the exception of the depression year of 1934, this price is the lowest reported store price in the 16-year period, 1925-1940 (Table 1). Since about half the milk in Chicago is purchased from stores this price represents substantial savings to consumers.

Since the first of the year, consumer prices for home deliveries in Chicago have also been materially lowered through the use of quantity discounts. Although the quoted price for home deliveries is 13 cents per quart, an increasingly large part of home deliveries now consist of 2-quart sales at 22 cents, and 4-quart sales at 40 cents.

In 1939, the per capita consumption of milk in Chicago was only about three-fourths of the .75 pint daily consumed per capita in New York.² Low consumption in Chicago can be attributed primarily to high store prices as compared with those in New York. Continuation of store prices in Chicago at their present low level is likely to result in a continued increase in milk sales in this city.

R. W. BARTLETT

MORTGAGE DEBT AND LAND USE IN CUMBERLAND COUNTY

Many comments have been made about the effect of debt burden on land use, but little actual evidence has been available on the subject. The point has been studied recently through the use of data from Cumberland county, Illinois. Data for 218 farms³ were arrayed according to debt per acre and then were divided into four equal groups (Table 1).

TABLE 1.—LAND USE IN CUMBERLAND COUNTY, ILLINOIS, 1935, FOR 218 FARMS GROUPED BY DEBT PER ACRE

Average debt per acre of land mortgaged	Average soil productivity rating ^a	Average estimated corn yield per acre	Percent land in cropland	Percent of cropland in		
				Soil- depleting crops	Hay	Idle
		(bu.)				
\$10. 79.....	8. 2	26. 8	62. 0	61. 9	13. 0	9. 8
18. 20.....	8. 4	27. 2	65. 0	62. 1	15. 0	6. 9
25. 79.....	8. 0	27. 4	75. 0	59. 9	12. 3	4. 4
40. 76.....	7. 3	30. 6	76. 0	68. 1	14. 3	4. 1
Average:						
\$23. 88.....	8. 0	28. 0	69. 5	63. 0	13. 6	6. 3

^aBased on a scale in which 1 represents the best soil and 10 the poorest soil for the production of grain crops.

The soil productivity ratings, which should measure inherent productivity averaged practically the same in all but the highest debt group; the general quality of the soil was rather low in all groups. As indicated by corn yields, however

¹Probable Effect of Monopoly Investigations Upon Retail Prices and Milk Consumption University of Illinois Dept. of Agr. Ec. Mimeo. Report, AE-1324, pp. 6-11, Jan. 1940.

²Based upon reports of U.S.D.A.

³These 218 farms represent all Cumberland county farms which have 40 acres or more, which carried mortgages in 1935, and for which land-use data of the type summarized in Table 1 were available for 1935.

the present productivity of the land is positively correlated with size of debt. The percent of land in crops in 1935 tended to increase with debt, but the percent of cropland in soil-depleting crops averaged about the same in the first three groups but increased in the fourth, this higher percent indicating either better land or more intensive land use. For all debt groups, the percent of cropland in hay was fairly constant, but the percent of idle cropland decreased as the debt increased, this increase indicating either better land or more intensive use of the land. Broomcorn is grown as a cash crop in this county, and the percent of cropland in this crop tended to increase with size of debt.

Cooperators and Noncooperators in AAA Programs. An examination of 1935 land-use data for cooperators and noncooperators in the AAA program in 1939 showed that the noncooperating farms were on soils of somewhat higher inherent soil productivity than were the cooperating farms; but the present soil productivity, as indicated by corn yields, was apparently better on the cooperating farms. The higher corn yields on land of apparently lower inherent soil productivity suggest that the farmers who cooperated in 1939 were following a better system of farming as far back as 1935 when the program was first getting under way. Although the noncooperators had a higher average debt per acre, the difference between the two groups was not large, and this small difference indicated that size of debt was not an important factor in determining participation in the program.

In both groups, the percent of cropland in total soil-depleting crops and in broomcorn increased as debt increased. The increase in the importance of broomcorn between the low and high debt farms was larger for the noncooperators than for the cooperators.

Results in 1939. Land-use data for 1939 were available only for farms that cooperated in the AAA in that year, but the relationships were similar to those noted for 1935. In spite of AAA allotments, the more heavily-indebted farms had a higher percent of cropland in soil-depleting crops than did farms with smaller debts. This situation can probably be explained by the three factors used in determining AAA allotments: (1) soil productivity; (2) quality of land; and (3) past crop history. Thus those farms which originally had higher percents in soil-depleting crops may continue to do so even after AAA allotments are set.

Comparison of Mortgaged and Mortgage-free Farms. A further comparison of land use in 1935 was made for mortgaged and mortgage-free farms. This comparison showed that the mortgaged farms had a higher percent of cropland in corn, in wheat, and in total soil-depleting crops than did the mortgage-free farms. The mortgaged farms had less idle cropland and corn yields that averaged about 2 bushels more per acre than did the mortgage-free farms. In 1939 about the same relationships held with some modifications. The mortgage-free farms had 3 percent less of their cropland in soybeans for grain, 8 percent less in corn, and about 7 percent less in all soil-depleting crops than did the mortgaged farms. In this year estimated corn yields on the mortgaged farms averaged below those on the mortgage-free farms. Apparently the mortgage-free farms with better crop yields continued as cooperating farms in 1939.

This study indicates that certain differences in land use in the area considered may be related to debt burdens. More corn, broomcorn, and total soil-depleting crops are grown and less land is idle on the more heavily-mortgaged farms, and for all groups these factors tend to increase somewhat with the size of debt burden per acre. However, more intensive use of land in the high-debt group is also associated with better land.

N. L. SMITH and L. J. NORTON

THE EFFECT OF INCREASED SUPPLIES UPON SOYBEAN MEAL PRICES IN 1940-41

Summary. The situation in connection with the factors that affect the price of soybean meal may be summarized as follows:

(1) The acreage planted to soybeans in 1940 is probably 17 or 18 percent larger than it was in 1939.

(2) About $\frac{4}{5}$ of this increase in acreage is found in Illinois, Indiana, Iowa, and Ohio, the principal commercial area.

(3) If yields in 1940 equal those of 1939, especially in the 4 commercial states, a total production of 120 million bushels might be expected. This amount would compare with the 87.4 million bushels which were produced in the United States in 1939. A 50 percent increase in soybean-meal production may therefore be expected.

(4) Prospects for exports of oilseeds or their products are not bright at the present time.

(5) Prospects for an average sized feed crop are good. Some reduction is expected in the production of cottonseed, but the production of flaxseed in the United States will probably show an increase this year.

(6) Tankage production will probably hold up at a high level.

(7) Numbers of dairy cattle, beef cattle, and sheep are expected to increase. Hog production may decline as much as 10 percent.

(8) The domestic demand for meats and dairy products apparently will be supported by the armament program.

(9) Although the world situation has a tendency to depress prices, the influence of the armament program upon domestic prices may more than offset any further deflationary tendencies resulting from the war.

Influence of Supplies on the Price of Soybean Meal. Soybean meal is currently quoted at \$17.00 a ton at the mills at Decatur or \$20.20 at Chicago for delivery after September. This price for soybean meal is very low as compared with those of any other recent period, and it compares with the record low of \$20.83, which was the monthly average price at Chicago for the year 1931-32. In view of the conditions set forth in the summary above, the following question arises: Is \$17.00 a ton at Decatur too high, too low, or about right? The correct answer to this question would also help us know whether the current October futures quotation for soybeans in Chicago is a fair estimate of the probable price this fall. Prices of soybeans, of course, would depend upon the prices of both soybean meal and soybean oil. A reasonable basis of computation of the price of soybeans would be to estimate the price of about $46\frac{1}{2}$ pounds of meal and 91 $\frac{1}{4}$ pounds of oil at Decatur and then allow the processor the necessary margin for operations, possibly 15 cents a bushel. This discussion pertains only to soybean meal, however.

Year-to-year changes in the price of soybean meal are more closely related to the changes in the production of all oilseed cakes and meals than to the changes in the production of soybean cake and meal alone. In other words, a 50 percent increase in the production of soybean meal would not have as depressing an effect upon the price of soybean meal as a 50 percent increase in the production of all oilseed cakes and meals would have.

At the present time we can do no better than to assume that the production of cottonseed, linseed, copra, and peanut cakes and meals in the United States will be equal to the production in 1938-39 both in 1939-40 and in 1940-41. We may further assume that approximately 400 thousand tons of cake and meal are used for fertilizer each year. On the basis of these assumptions, the total oilseed cake and meal production which would be available for feeding would be about

4.0 million tons for 1939-40 and approximately 4.8 million tons for 1940-41. These figures would compare with the production of about 3.6 million tons in 1937-38 and 1938-39.

After consideration is taken for the number of grain-consuming animals on farms, the supply of all oilseed meals and cakes per animal unit in 1940-41 will apparently be about 69 pounds as compared with 59 pounds in 1939-40, 56 pounds in 1938-39, and 59 pounds in 1937-38. On the basis of apparent relationships during recent years between the prices of cottonseed meal and soybean meal and the supplies of all oilseed cakes and meals per animal unit, the price of cottonseed meal at Memphis might be expected to average as much as \$4.50 a ton lower in 1940-41 than in 1938-39. The price of soybean meal at Decatur may be as much as \$5.50 a ton below the comparable 1938-39 price or about \$7.00 below the price in Decatur in 1939-40. A yearly average price of about \$17.00 to \$18.00 a ton for soybean meal at Decatur would be suggested for the year 1940-41 on the basis of supplies alone. The reduction in price caused by increased supplies would tend to be offset (1) by any increase in consumers' income that resulted from increased business activity, (2) by any rise in the general level of commodity prices which might take place during the year, (3) by an improved export demand, or (4) by a small feed, pasture, or cotton crop.

G. L. JORDAN

AGRICULTURAL ECONOMIC FORUMS ON THE AIR
EVERY FRIDAY AT 11:30 A.M. (C.S.T.)
STATION W I L L, 580 KILOCYCLES

- July 12**—"High Spots in the Study of the Farm Business"—M. L. MOSHER, R. J. MUTTI, R. W. BARTLETT.
- July 19**—"The Current Economic Situation as It Affects the Farmer"—H. C. M. CASE, G. L. JORDAN, R. W. BARTLETT.
- July 26**—"How Can We Reduce Unemployment and Increase Farm Income?"—R. W. BARTLETT, G. L. JORDAN, L. J. NORTON.
- August 2**—"What Rural Organizations in Illinois Are Doing"—G. T. HUDSON, D. E. LINDSTROM, R. W. BARTLETT.

The last 10 minutes of each program will be devoted to market reviews by L. H. SIMERL.

Footnotes for the following page:

¹⁻¹²The first source is for annual data; the second is for current data from which tables may be brought
 o date.

¹Survey of Current Business, 1936 supplement, U.S. Dept. of Commerce; subsequent monthly issues. Same as footnote 1. ²Illinois Crop and Livestock Statistics, Circular 438 (1937); monthly mimeographs of Statistical Tables for Illinois Crop Report, converted from 1910-14 = 100 to 1924-29 = 100 by multiplying by .7151. ³Agricultural Situation, Bureau of Agricultural Economics, U.S.D.A.; Agricultural Situation, converted from 1910-14 = 100 to 1924-29 = 100 by multiplying by .6486. ⁴Calculated from data furnished by Bureau of Agricultural Economics; Survey of Current Business, seasonally adjusted. ⁵Calculated by Department of Agricultural Economics, University of Illinois, seasonally adjusted. Data from Farm Income, Bureau of Agricultural Economics; B.A.E. monthly mimeograph. Receipts from Sale of Principal Farm Products (government payments not included). ⁶Obtained by dividing Index of Illinois Farm Income (column 6) by Index of Prices Paid by Farmers (column 4). ⁷Monthly Indexes of Non-Agricultural and National Income, Supplement, August, 1937, B.A.E.; Price and Demand Situation, or Agricultural Situation. ⁸Survey of Current Business, 1938 Revision; subsequent monthly issues, unadjusted for seasonal variation. ⁹Federal Reserve Bulletin of Federal Reserve Board, September, 1933 and subsequent issues; Survey of Current Business, seasonally adjusted. ¹⁰Preliminary estimate. ¹¹Illinois Crop and Livestock Statistics, Cir. 438; Monthly price releases, State Agricultural Statistician.

TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural income ⁸	Factory payrolls ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. In money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period.....	1926	1926	1924-29	1924-29	1924-29	1924-29	1924-29	1924-29	1923-25	1923-25
1929.....	95	105	104	99	103	103	104	107	110	119
1930.....	86	88	89	94	83	87	93	100	89	96
1931.....	73	65	62	80	58	58	72	87	68	81
1932.....	65	48	41	69	43	43	62	68	47	64
1933.....	66	51	45	71	49	51	72	63	50	76
1934.....	75	65	61	80	57	55	69	72	64	79
1935.....	80	79	82	81	64	65	80	77	74	90
1936.....	81	81	86	80	74	82	103	90	86	105
1937.....	86	86	96	84	80	87	103	95	102	110
1938.....	79	69	69	80	72	81	101	88	78	86
1939.....	77	65	65	78	72	81	97	93	91	105
1939 June.....	76	62	62	78	64	72	92	92	87	98
July.....	75	63	61	78	63	70	90	92	84	101
August.....	75	61	58	77	66	62	80	93	80	103
Sept.....	79	69	71	79	74	78	98	93	94	111
Oct.....	79	67	67	79	76	101	127	95	102	121
Nov.....	79	67	67	79	76	93	117	96	102	124
Dec.....	79	68	66	79	79	99	125	97	104	128
1940 Jan.....	79	69	68	79	79	100	126	96	98	119
Feb.....	79	68	67	79	83	100	126	95	98	109
Mar.....	78	68	66	79	76	98	124	95	98	104
Apr.....	79	69	67	80	82 ¹¹	76	96	94	96	102
May.....	78	68	69	80	...	...	...	...	96	105 ¹¹
June.....	77 ¹¹	67 ¹¹	...	...	...	...	...	...	...	117 ¹¹

TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS¹²

Product	Calendar year average			May 1939	Current months		
	1924-29	1938	1939		March	April	May
Corn, bu.....	\$.81	\$.45	\$.43	\$.44	\$.51	\$.54	\$.60
Oats, bu.....	.42	.24	.28	.29	.38	.38	.35
Wheat, bu.....	1.30	.68	.67	.68	.93	.97	.87
Barley, bu.....	.66	.53	.41	.41	.46	.48	.47
Soybeans, bu.....	1.94	.75	.74	.85	1.00	.97	.92
Hogs, cwt.....	9.97	8.06	6.56	6.60	4.90	4.95	5.50
Beef cattle, cwt.....	8.57	7.68	8.18	8.50	8.10	8.20	8.40
Lambs, cwt.....	12.22	7.76	8.18	8.70	8.60	8.90	8.90
Milk cows, head.....	78.00	60.00	63.00	63.00	64.00	65.00	65.00
Veal calves, cwt.....	11.27	8.89	9.15	8.80	10.00	9.50	9.70
Sheep, cwt.....	6.52	3.36	3.44	3.60	3.70	3.70	3.60
Butterfat, lb.....	.42	.25	.23	.20	.26	.26	.25
Milk, cwt.....	2.32	1.66	1.59	1.40	1.60	1.55	1.50
Eggs, doz.....	.30	.19	.16	.13	.14	.13	.14
Chickens, lb.....	.21	.15	.13	.14	.12	.13	.14
Wool, lb.....	.36	.21	.25	.22	.30	.28	.30
Apples, bu.....	1.59	.95	1.07	1.45	1.15	1.25	1.35
Hay, ton.....	13.38	7.65	6.05	6.20	7.00	7.00	7.70
Potatoes, bu.....	1.39	.73	.80	.85	.90	.90	.90

¹⁻¹²For sources of data in tables see previous page.

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Director, Extension Service in Agriculture and Home Economics, University of Illinois.

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G. L. Jordan, Editor

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Number 63

PROSPECTS FOR CATTLE FEEDING IN THE LIGHT OF AN INDEX OF CATTLE FEEDING PROFITS

Many Illinois cattle feeders make most of their purchases of feeder cattle during the late summer and early fall. This, consequently, is a time for them to consider carefully the cost of feeders in the light of prospects for prices of new crop corn and of fed cattle during the coming months. In August and September of 1939, good feeder steers of 500 to 800 pounds at Kansas City averaged nearly \$8.50 per hundred. In the late winter and spring good fed steers weighing 900 to 1100 pounds averaged a little better than \$10.00 per hundred pounds at Chicago. Under such market conditions and with prevailing feed prices, cattle feeders generally were able to make better than average profits on stock purchased in the late summer or early fall and marketed in late winter or early spring. It is doubt-

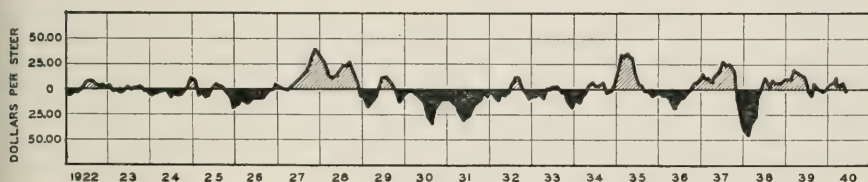


FIG. 1. PROFITS AND LOSSES PER STEER*

There appears to be a marked cyclical tendency in the net returns from feeding "good" steers. However, the returns have fluctuated quite erratically.

ful whether cattle market conditions during the coming year will prove as favorable to feeders. In the past 8 months prices of finished cattle have been well maintained in spite of marked declines in hog prices, but increased supplies of pork are nevertheless a weakening factor in the cattle market. Furthermore, cattle feeding returns have been favorable over so long a period that there is considerable danger that feeding may be overdone in the coming year so that for the majority of feeders it may be unprofitable.

Figure 1 shows a monthly index of cattle feeding profits. This is one of a number of such indexes that have been computed by the Department of Agricultural Economics of the University of Illinois. It shows the varying profitableness of one of the most typical types of cattle feeding and is consequently of assistance in measuring the changes which have taken place in cattle feeding returns during past years and in judging the prospects for the future. It will be noted that although cattle feeding returns fluctuate quite erratically, there is nevertheless a marked cyclical tendency. Periods of good profits usually alternate with periods of losses. Periods of a year or more when the net margin from feeding operations has been above the average of the past 18 years have usually been followed by periods when the opposite was true—when net margins were less than average.

This fluctuation of cattle feeding returns from profits to losses and back again

*Deviations of net margin from the 1922-1939 average of \$11.11 per steer.

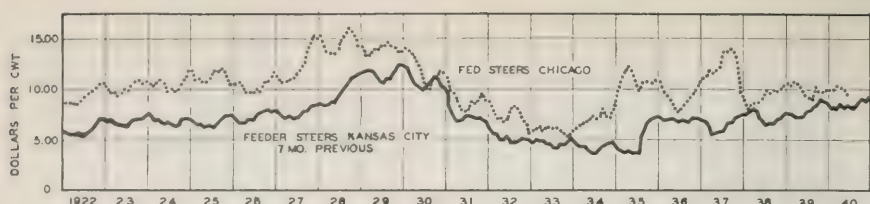


FIG. 2. PRICES OF GOOD STEERS AT CHICAGO AND PRICES 7 MONTHS PREVIOUS OF GOOD FEEDER STEERS AT KANSAS CITY

Much of the variation in profits and losses per steer can be accounted for in the comparative fluctuations of the price of the feeder steer and the finished steer.

is dependent upon a number of different factors of costs and returns. One may summarize the principal reasons for the cyclical tendency by saying that a period of highly profitable feeding returns tends to cause more cattle to be fed which in turn tends to raise the price of feeder stock and to lower the price of fed cattle when the finished cattle come to market. Fluctuating production and prices of corn and other feedstuffs, also contribute to the changes in feeding profits, tending both to perpetuate the cycle and to contribute to the irregularity of the fluctuations.

It will be noted that, except for a few months during the latter half of 1939, the index shown in Figure 1 has been above average for about two years. This suggests that unless some unusual circumstances (such as a sustained improvement in the demand for finished cattle or a short corn crop) prevent, we are likely to have in the near future a period in which cattle feeding will be unprofitable—or for the better feeders, a period in which feeding will be less profitable than usual.

While the foregoing indicates briefly the nature of the accompanying index of cattle feeding profits, further explanation of the way in which it is constructed is necessary for an understanding of what it shows and what are its limitations. It is to be recognized first of all that cattle feeding profits vary widely, not only from month-to-month and from year-to-year, but between individuals. Two feeders who purchased the same grade of steers at the same time and who sold their finished steers at the same time may obtain widely different results. One, because of the efficiency with which he is able to put on gains, or because of the high finish of his fed cattle, may make a profit while the other, because of his less efficient feeding methods, or because of his failure to buy feed wisely, may lose money. The index under discussion shows nothing of such differences between individuals. It shows rather the month-to-month differences in return which a typical feeder might obtain by following an unchanging system of dry-lot feeding, purchasing "good" yearling feeder steers on the Kansas City market and selling them seven months later at Chicago. Different results would, of course, be obtained from different grades of cattle, from feeding periods of different lengths, or from different rations.

In constructing the index, explicit account is taken of all purchasing and marketing costs including freight, commissions, insurance, yardage, bedding, etc. Feed charges are based on feed prices prevailing in the month when the steers were purchased. Since no reliable data are available concerning changes in the value of labor and equipment used on the farm or of the value of the fertility returned to the land as a result of feeding operations, these items are taken account of only by the process of showing the profits as deviations from the average. Average cattle feeding returns over a period of years may be looked upon as being sufficient only to pay for all the costs incurred, including the labor management and risk of the feeder. In this sense, consequently, the shaded area:

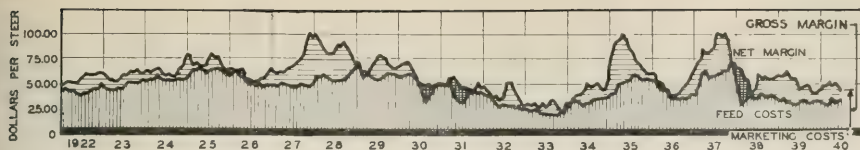


FIG. 3. GROSS MARGIN,* VALUE OF FEED, AND MARKETING COSTS PER STEER

The net margin per steer tends to be greater in periods of increasing feed costs than in periods in which the feed costs are steady or declining.

of Figure 1 represent periods when cattle feeding was truly profitable and the black areas are in periods when most feeders were losing money—in the sense of not making sufficient profit to pay adequately for their work and risk.

Figure 2 shows the two cattle price series which are used in the construction of the index. The upper line represents the average price of "good" 900 to 1100 pound finished steers at Chicago, whereas the other shows the price seven months previous of "good" 500 to 800 pound feeder steers at Kansas City. The comparative fluctuations of these two series and of the cost of feed, account for much of the variation in the index.

In Figure 3 the gross margin between the value of a finished steer and the value of the feeder steer is compared with the variations in the cost of feed. The gross margin represents the difference between the value of a 1025 pound "good" fed steer at Chicago and a 650 pound "good" feeder steer in Kansas City seven months earlier. The cost of feed represents the value of 35.8 bushels of corn, .81 ton of alfalfa hay, and .16 ton of cottonseed meal. It is typical for Illinois feeders to make use of pasture and silage in their steer feeding operations, but no monthly price series of these are available. Presumably, however, the value of pasture and silage to the feeder will vary closely with changes in the value of hay and corn, hence the method used for calculating the value of feed gives results which are consistent with the more usual feeding practice.

The feed prices used are those prevailing in the month in which the steers are purchased. When the decision is made to feed cattle, essentially a choice is made between selling corn in the market and disposing of it through the feeding of beef cattle. The main difficulty of this procedure results when cattle are purchased in the late summer or early fall of a year following a short corn crop. Under such circumstances corn is charged at a higher price than the price of the new crop corn which is actually fed the cattle. As a result, the profits index is lowered materially in the spring months (seven months after the high corn price) of these years, but a careful analysis shows that it does not materially affect the general cyclical pattern of the index, consequently a more complicated procedure of evaluating the feed is not warranted.

To arrive at the net margin per steer, it is necessary to deduct from the gross margin both the value of the feed and the costs of purchasing, transporting, and marketing the steers. There have been wide fluctuations in the feed costs, but relatively little change in the other costs, which may be briefly termed "marketing costs." These latter, which include the average cost of rail transportation to and from a number of typical feeding regions in central and western Illinois, have amounted in recent months to \$6.45 per steer. The calculated net margin which resulted from subtracting both the feed cost and "marketing cost" is shown in Figure 4.

It will be noted that there are only a few short periods when there has not been a positive net margin—that is, when the value of the finished steer has not

*Difference between value of 1025 pound "good" steer at Chicago and 650 pound "good" feeder steer seven months previous at Kansas City.

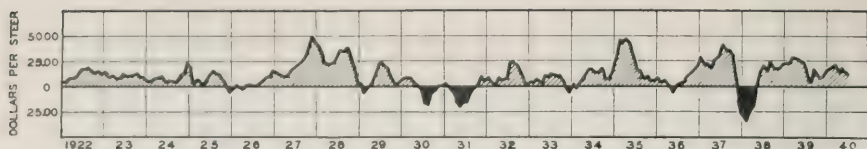


FIG. 4. NET MARGIN PER STEER*

There have been only a few short periods in cattle feeding since 1922 in which there has not been a positive net margin; i.e., when the value of the fed steer has not been greater than the cost of the feeder steer, feed costs, and marketing costs. This net margin averaged about \$11.00 per steer and represented labor and management wage, payment for risk incurred, and miscellaneous costs.

exceeded the value of the feeder steer seven months earlier, plus the value of feed and the marketing costs. It should not be assumed, however, that cattle feeding has been profitable whenever this net margin is above zero. The cattle feeder is put to expense for veterinary services and for his feeding equipment as well as for hired labor to care for his cattle. Furthermore, his own labor and management ability as well as the risk which he bears are economic costs which must in the long run be paid for by the purchaser of fed cattle. On the other hand the farmer receives some value from the fertility returned to the soil by the cattle. The very fact that the net margin has averaged approximately \$11.00 per steer during the past 18 years indicates that there is a net cost (including wages of management) of approximately \$11.00 in addition to those costs of which specific account has been taken in arriving at the "net margin." By subtracting this figure from the net margin, we arrive at the index of cattle feeding profits and losses which is shown by Figure 1.

E. J. WORKING

QUANTITY DISCOUNTS AS A MEANS OF INCREASING MILK CONSUMPTION

Several studies made at the University of Illinois show that a decrease in the price of milk causes consumption to increase but that an increase in the price of milk causes consumption to decrease.¹ These studies also show that high retail wagon prices relative to store prices in several markets have brought about an increase in store sales of milk and a subsequent decrease in wagon sales. To reverse this tendency, the retail wagon price must be lowered to meet store competition. In several markets, including St. Louis, Chicago, New York, and Champaign-Urbana, Illinois, this reversal has been accomplished through the sale of milk on retail routes at prices which are lower when milk is purchased in larger quantities, and which are comparable to prices already in effect at plant and retail stores.

Quantity discounts on regular retail routes were introduced in the Champaign-Urbana market in 1932 as a result of the competition of small independent producer-distributors who sold milk at prices considerably below those charged by older retail distributors. Although at first the listed discount was one cent per quart on home deliveries of 4 quarts or more, in 1935 the gallon jug was introduced at a listed discount of 2 cents per quart. More recently the discount has been reduced to 1 $\frac{3}{4}$ cents per quart, but deliveries are made in 4 single quart units rather than in gallon jugs. Consumers in Champaign-Urbana have increased their use of the quantity discount in recent years. Thus in March, 1938, mor-

*Gross margin minus value of feed and purchasing and marketing costs.

¹Bartlett, R. W.: Increasing the Efficiency of Milk Distribution, University of Illinois, Department of Agricultural Economics, Mimeographed Report AE-693; Some Consumption Studies, University of Illinois, Department of Agricultural Economics, Mimeographed Report AE-1265; Increasing Milk Consumption Through the Use of Quantity Discounts, *Illinois Farm Economics*, March, 1940, p. 329.

TABLE 1.—PROPORTION OF PATRONS TAKING MILK ON A QUANTITY-DISCOUNT BASIS AND PROPORTION OF RETAIL MILK SALES SOLD IN GALLON LOTS, FOR MARCH OF THE SIX YEARS, 1933-1938

Year	Total number of patrons	Number of patrons on the discount basis	Percent of patrons on the discount basis	Percent of milk sales sold in gallon lots
1933.....	1 323	26	1.97	5.55
1934.....	1 184	19	1.60	5.92
1935.....	1 384	154	11.13	22.99
1936.....	1 364	192	14.08	28.10
1937.....	1 436	279	19.43	34.29
1938.....	1 564	317	20.27	35.26

than 20 percent of the families included in this study made use of the discount privilege as compared with less than 2 percent in March, 1933 (Table 1). The volume of milk sold on a quantity-discount basis increased from 5½ percent of the retail sales in 1933 to over 35 percent in 1938.

The increase in gallon-lot sales in Champaign-Urbana is similar to that found in St. Louis. In the fall of 1938 price reductions in St. Louis of 3 to 4 cents per quart for milk in gallon lots caused the proportion of total home deliveries of milk sold in gallon lots to increase from 6.8 percent in July, 1938, to 22.2 percent in July, 1939.¹

Effect of Quantity Discounts Upon Per Capita Consumption of Milk. An analysis of the effect of the purchase of milk in larger units in Champaign-Urbana showed the following results:

1. The introduction of the quantity discounts materially increased the per capita consumption of milk, particularly during the first few months of its use.

TABLE 2.—EFFECT OF THE USE OF QUANTITY DISCOUNTS UPON THE PER CAPITA CONSUMPTION OF MILK FOR GROUPS OF PATRONS USING THESE DISCOUNTS FOR SPECIFIC PERIODS OF TIME, 1933-1938^a

Period of time ^b	Number of patrons	Average per capita consumption	Percent of base period
Group A		<i>pints</i>	
6 months before.....	53	.8489	100.00
6 months after.....	53	.9717	114.49
6 to 12 months after.....	53	.9220	108.61
12 to 18 months after.....	53	.9131	107.68
18 to 24 months after.....	53	.9163	107.94
Group B			
6 months before.....	89	.8210	100.00
6 months after.....	89	.9474	115.41
6 to 12 months after.....	89	.9097	110.80
12 to 18 months after.....	89	.8975	109.39
Group C			
6 months before.....	135	.8077	100.00
6 months after.....	135	.9515	117.85
6 to 12 months after.....	135	.9277	114.85
Group D			
6 months before.....	154	.8125	100.00
6 months after.....	154	.9625	118.46

^aCompiled from the retail route books of a distributor.

^bA record of milk consumption was made from the retail route delivery books of a distributor for the period of 1933 through 1938. All patrons were included who, at one time or another, had secured their milk on a quantity-discount basis. Of the total number of records studied, 154 were complete enough to allow a comparison between the 6 months before the patrons changed to the quantity-discount basis and the 6 months after they had changed to that basis. Of these 154 patrons, 135 had been taking milk on the quantity-discount basis for 12 months, 89 for 18 months, and 53 for 24 months, and these groups were compared to the base period for each 6-month interval.

¹Bartlett, R. W.: Increasing Milk Consumption Through the Use of Quantity Discounts, *Illinois Farm Economics*, March, 1940, p. 329.

TABLE 3.—EFFECT OF THE USE OF QUANTITY DISCOUNTS UPON THE PER CAPITA CONSUMPTION OF MILK FOR GROUPS OF PATRONS IN THE VARIOUS INCOME LEVELS USING THESE DISCOUNTS FOR SPECIFIC PERIODS OF TIME, 1933-1938

Period of time	High-income group			Medium-income group			Low-income group		
	Number of patrons	Average per capita consumption	Percent of base period	Number of patrons	Average per capita consumption	Percent of base period	Number of patrons	Average per capita consumption	Percent of base period
Group A average		<i>pints</i>			<i>pints</i>			<i>pints</i>	
6 months before.....	44	.8682	100.0	7	.7417	100.0	2	.8000	100.0
6 months after.....	44	.9855	113.5	7	.8779	118.4	2	1.0021	125.3
6 to 12 months after.....	44	.9420	108.5	7	.8284	111.7	2	.8111	101.4
12 to 18 months after.....	44	.9260	106.7	7	.8219	110.8	2	.9741	121.8
18 to 24 months after.....	44	.9254	106.6	7	.8521	114.9	2	.9408	117.6
Group B average									
6 months before.....	72	.8251	100.0	14	.8242	100.0	3	.7065	100.0
6 months after.....	72	.9540	115.6	14	.9232	112.0	3	.9051	128.1
6 to 12 months after.....	72	.9188	113.6	14	.9049	109.8	3	.7136	101.0
12 to 18 months after.....	72	.9066	109.9	14	.8756	106.2	3	.7987	113.0
Group C average									
6 months before.....	102	.8152	100.0	26	.7889	100.0	7	.7679	100.0
6 months after.....	102	.9588	117.6	26	.9139	115.8	7	.9972	129.9
6 to 12 months after.....	102	.9332	114.5	26	.9181	116.4	7	.8824	114.9
Group D average									
6 months before.....	119	.8231	100.0	27	.7776	100.0	8	.7997	100.0
6 months after.....	119	.9699	118.1	27	.9199	118.3	8	.9954	124.5

2. The use of the quantity discounts was largely limited to high-income families whose per capita consumption previously was materially higher than was the average market consumption.

3. The greatest increase in per capita consumption of milk was found for the limited number of families in the low-income group.

4. Although the per capita consumption in all income groups tended to decrease after the first few months when the plan was used, milk consumption was still substantially higher, even after two years, than it was before the plan was used.

This study showed that 154¹ families increased their per capita consumption from an average of .81 pint daily for the 6 months before they changed to the quantity-discount plan of buying milk to .96 pint daily for the first 6 months after they had changed to the plan (Table 2). This increase amounted to over 18 percent.

Customers who took advantage of the discount privilege were those who normally consumed more than the average amount of milk. The average per capita consumption of the 154 families was .81 pint daily as compared with .61 pint daily, the average for the market as a whole for the same period.

Following the large increase during the first 6 months, these families tended to reduce their consumption. Thus, records of 53 families showed a decline in their per capita consumption of milk from .97 pint daily for the first 6 months after they started buying milk in gallon lots to .92 pint daily after they had used the quantity-discount method for 2 years (Table 2). However, this consumption of .92 pint was 8 percent higher than their consumption had been before they used the plan.

Quantity Discounts Used Most by High-Income Families. The majority of the families using the discount basis were in the high-income group (Table 3). Of the 154 families, 119 were in the high-income areas of the market, 27 were in the medium-income areas, and only 8 were in the low-income areas.

¹See footnote "b," Table 2.

Before the patrons changed to the quantity-discount plan, the per capita consumption of milk was slightly higher in the high-income group. In this group, the per capita consumption of milk was .82 pint daily as compared with .78 pint daily in the medium-income group, and .80 pint daily in the low-income group.

The increase in milk consumption in the first 6 months after the patrons had changed to the quantity-discount plan was greatest in the low-income group.¹ In this group, the per capita consumption of milk increased 24.5 percent as compared with 18.3 percent in the medium-income group, and 18.1 percent in the high-income group.

The decline in consumption with the passage of time was greatest in the high-income group. In this group, the per capita consumption of milk was only 6.6 percent greater after 2 years as compared with 14.9 percent in the medium-income group, and 17.6 percent in the low-income group.

Conclusions and Recommendations. The high proportion of families using the plan in the high-income group indicates that the quantity-discount plan, as used in this market, fits their needs better than it fits the needs of the low- and medium-income groups. Hence, if further increases in milk consumption are to be encouraged, milk prices should apparently be changed so that they will fit the needs of the medium- and low-income consumers. Suggested changes are:

1. Continue the present plan of selling 4 quarts of home-delivered milk for 37 cents, or at a discount of $1\frac{3}{4}$ cents per quart from the 11-cent home-delivered price of single quarts.

2. Introduce a quantity discount of 1 cent per quart for 2-quart purchases, or 2 quarts for 20 cents. This discount is in line with similar ones offered for 2-quart purchases in the St. Louis and Chicago markets. Such a discount would not only increase the purchases of the low- and medium-income groups but would also affect those high-income families in which the size of family makes it impractical to buy milk in gallon lots.

3. Encourage store sales by offering consumers a discount of 1 cent per quart from the home-delivered price. On the basis suggested, this discount would mean 4 quarts for 33 cents, 2 quarts for 18 cents, and 1 quart for 10 cents. This recommendation is in line with the practice of selling store milk at lower prices in many markets, including New York, Chicago, and St. Louis. In these markets, low store prices have resulted in substantial increases in milk consumption.

G. A. LEE

FARM ACCOUNT RECORDS AND SURVEYS INDICATE FINANCIAL BENEFITS OF SOIL CONSERVATION PRACTICES

Summary. Farm account record studies on 250 farms in the Edwardsville, LeRoy, and Freeport Soil Conservation Areas for 1939 revealed that a well-planned conservation program, which embodies the best physical and economic use of each acre of the farm, is paying dividends for farmers cooperating in the soil-conservation and erosion-control program in these areas. Although the conservation cooperators² had farm plans which were still in a transition stage, their average incomes were higher than were those on the noncooperating farms. With the better land use and greater emphasis on soil conservation and soil improvement, the incomes on the cooperating farms should increase in relation to those on the noncooperating farms as time passes and as the farm business becomes adjusted to the increased production of erosion-control and soil-improvement crops. In the meantime, these conservation cooperating farms are maintaining their soil resources as a heritage for future generations.

¹This fact should not be overemphasized because of the smallness of the sample.

²Conservation cooperators, as used in this report, refer to farmers cooperating with the Soil Conservation Service as distinguished from farmers cooperating with the Agricultural Adjustment Administration. Agricultural Adjustment Administration cooperators are not discussed in this report.

The detailed farm account record studies show the following significant results:

(1) Total farm expenses an acre averaged no higher on the conservation cooperating farms than on the noncooperating farms, but farm incomes averaged higher on the conservation cooperating farms.

(2) Contour farming can be performed at no apparent increase in the total farm operating expense, and it results in higher crop yields.

(3) By careful selection and management of cows, milk can be produced efficiently with low "out-of-pocket" costs on a high-roughage ration.

(4) The products of a well-planned conservation program, that is, good-quality legume hays and legume and nonlegume pastures, can be utilized profitably through well-managed livestock enterprises with the result that soil resources will be protected and desirable farm incomes will follow.

Results from the LeRoy Area (Grain Farming). The LeRoy Area is located in McLean county in the cash-grain type-of-farming section of Illinois. Corn, oats, and soybeans are the major crops grown, and grain sales constitute the major source of income. About 70 percent of the farmers in this area are tenant operators, and an additional 15 percent are part-owner operators. There is considerable indebtedness on the owner-operated farms. Approximately 75 percent of the area is either undulating or gently rolling prairie land, 14 percent is level land which lies along the drainage ways, and the remaining 11 percent is either rolling or gently rolling timberland, much of which has been cleared of the native timber.

Erosion is evident on all of the slopes in this area and is particularly noticeable in the areas which were formerly timbered. Continuous cropping with soil-depleting and clean-tilled crops has so depleted organic matter and available soil fertility in most of the area that erosion is progressing at an increasing rate.

A total of 110 farm records was secured in the LeRoy Area for 1939. Of this number, 71 were farms cooperating with the soil conservation program, and 39 were neighboring farms not cooperating with the program. The soil conservation plan was initiated on 7 of the cooperating farms in 1934; 21, in 1935; 18, in 1936; 10, in 1937; 11, in 1938; and 4, in 1939. For purposes of analysis, the cooperating and noncooperating farms were divided into three groups on the basis of soil ratings. The ratings were computed from the soil type, percent of slope, and degree of erosion. The average soil rating was 2.53 on the cooperators' farms and 2.18 on the noncooperators' farms. Since the soil ratings range from 1, the best, to 10, the poorest, the noncooperators had somewhat better farms than did the cooperators. The 110 farms averaged 218 acres in size, the 71 cooperating farms averaging 226 acres and the 39 noncooperating farms averaging 205 acres. The analysis of the 1939 data for the LeRoy Area brought out the following facts which can be stated as general conclusions:

1. Although the conservation cooperators had farm plans which were still in a transition stage, their average net incomes were \$2.54 an acre higher than were those on the noncooperating farms.¹ (Net incomes were \$11.10 an acre on the cooperators' farms and \$8.56 an acre on the noncooperators' farms.) With the better land use and greater emphasis on soil conservation and soil improvement, the incomes on the cooperating farms should increase in relation to those on the noncooperating farms as time passes and as the farm business becomes adjusted to the increased production of erosion-control and soil-improvement crops. In the meantime, these conservation cooperating farms are maintaining their soil resources as a heritage for future generations.

¹Agricultural Adjustment Administration payments averaged 56 cents an acre higher on the farms of the soil conservation cooperators than on those of the noncooperators. When Agricultural Adjustment Administration payments are excluded, net incomes an acre are \$1.98 more on the cooperators' farms.

TABLE 1.—SOIL RATINGS, CROP YIELDS, AND SOIL-BUILDING LEGUMES, LEROY AREA, 1939

Items	Farms cooperating			Farms not cooperating		
	High soil rating	Medium soil rating	Low soil rating	High soil rating	Medium soil rating	Low soil rating
Number of farms.....	19	35	17	15	22	2
Average soil rating.....	1.82	2.35	3.90	1.78	2.30	3.97
Corn, bu. per acre.....	66	60	59	59	53	47
Crop yield index (average of all farms = 100).....	114	102	96	101	85	81
Percent of tillable land in soil-building legumes.....	17	19	28	10	11	5

2. Crop yields on farms with comparable soil ratings were consistently higher on the farms of conservation cooperators than on those of noncooperators. These higher yields indicated that the sound land-use program on these farms, which includes approximately twice as large a proportion of soil-building legumes, is paying dividends and will continue to pay them.

3. Operating expenses, such as man labor and horse and machinery costs per crop acre, were somewhat higher on the cooperating farms than on the noncooperating farms because the cooperating farms had fewer crop acres and higher harvesting costs due to higher crop yields. However, the total farm expenses an acre in this area averaged no higher on the conservation cooperating farms than on the noncooperating farms, in large part due to the fact that the conservation cooperating farmers have made an effort to do much of the work in connection with the conservation program during their spare time and without additional expenditure. (Total farm expenses an acre were \$10.44 on the cooperating farms and \$10.33 on the noncooperating farms.)

4. On the basis of soil rating, size of farm, and proportion of land tillable, the conservation cooperators have made considerable advancement in the adjustment of their land use to their soil resources, especially in comparison with the noncooperating farms. The land-use pattern on the noncooperating farms is such that soil resources on these farms are rapidly being depleted and such that progressively lower yields and farm incomes are likely to follow.

5. In this cash-grain type-of-farming area, the size of farm was smallest on the poorer lands, and this fact indicates the need for land-use adjustments in these poorer areas. Farmers tended to crop these poorer lands rather hard in order to obtain a living from them. A wide variation exists in size of farm and quality of soil resources available on the farms in this area; and in order to have an income sufficient for a good standard of living, the operators of the small, rough-land farms must do an especially good job of adjusting their land use to their soil resources and, furthermore, must utilize efficiently the crops grown on the farm.

6. Tenure problems in this area center primarily on the *rented-land* farms and on the *part-owner-operated* farms. The proportion of tenancy in this area is very high, and the major proportion of the tenants are *not* related to the owners of the farms. Part-owner operators tend to crop unsparingly the land which they rent. Similarly, the tenant operators tend to crop their farms unsparingly because, for the most part, these tenants have short-term leases (usually only one year). Since their leases have no provision for reimbursement, they feel that they will not be compensated for any improvements or soil-conservation or erosion-control measures which they might initiate at their own expense. The "toll" which is being exacted on the fertility of these tenant-operated and part-owner-operated farms is evidenced by the crop yields which average lower than those on owner-

TABLE 2.—TENURE RELATED TO LAND USE, CROP YIELDS, AND AMOUNT OF LIVESTOCK, LEROY AREA, 1939

Items	Farms cooperating			Farms not cooperating		
	Owner-operated farms	Part-owner-operated farms	Tenant-operated farms	Owner-operated farms	Part-owner-operated farms	Tenant-operated farms
Soil rating.....	2.83	2.44	2.83	2.20	2.03	2.26
Acres in farm.....	248	238	215	149	266	201
Percent of tillable land in:						
Grains.....	63	67	70	67	76	75
Soil-building legumes.....	20	19	20	11	8	11
Crop yield index.....	110	106	102	94	92	93
Value of feed fed to productive livestock	\$2 263	\$1 636	\$1 339	\$959	\$762	\$801

operated farms with similar soil ratings. In addition tenant farmers and part-owner operators are cropping their land "harder." They are feeding less livestock and consequently have less manure to return to the soil.

The above table suggests the need for improvement in landlord-tenant relationships and the need for a provision in the leasing system for compensation to the tenant for unexhausted improvements made by him in case he has to move before the benefits have been realized on such improvements. Likewise reimbursement to the landlord for abuse of the property by the tenant is a farm lease provision needing attention.

7. The conservation cooperators have more livestock than do noncooperators, and a larger proportion of their livestock is of the roughage-consuming type. A considerable expansion of the livestock enterprises has accompanied the adoption of the conservation program in this cash-grain type-of-farming area.

8. In the analysis of the total livestock enterprise, large quantities of good-quality legume and nonlegume roughage were utilized efficiently by livestock on some farms, and earnings on these farms were maintained at a high level. Strictly speaking, the problem of soil conservation is one of land use, and most good land-use programs in this area call for more grasses and legumes and other forage and hay crops. Since the farm is an economic unit, in many instances a market must be found for the products of these soil-conservation and soil-improvement crops. Efficient roughage-consuming livestock offer one of the best markets for these products of the conservation program, particularly if good livestock management is practiced, because milk, meat, and wool can be produced at a relatively low cost, especially from the standpoint of "out-of-pocket" costs.

9. More consideration might well be given to increased efficiency of the livestock enterprises on some of the farms in this area, and more attention should be given to the roughage-consuming types of livestock. In this area where most farms sell considerable quantities of grain, feed purchases may well be limited largely to high protein supplements.

10. The products of the well-planned conservation program, that is, good-quality legume hays and legume and nonlegume pastures, can be utilized profitably through well-managed livestock enterprises with the result that soil resources will be protected and desirable farm incomes will follow. On those farms where roughages comprised 30 percent or more (an average of 37 percent) of the total feed cost, returns per \$100 of feed fed livestock were \$155; for each \$100 of feed fed on farms where roughages comprised less than 30 percent (an average of 18 percent) of the total feed cost, returns were only \$143.

11. Contour farming on undulating and rolling land is a sound conservation practice which can be performed in this area at no apparent increase in the

TABLE 3.—CROP YIELDS, CONTOUR CULTIVATION COMPARED WITH USUAL FIELD SYSTEM ON SAME FARMS, LEROY AREA, 1939

Crop yields, bushels per acre	Farms by soil-rating groups			
	High soil rating	Medium soil rating	Low soil rating	All farms
Corn:				
On contour.....	81	55	55	55
Not on contour.....	62	50	55	54
Oats:				
On contour.....	37	21	17	23
Not on contour.....	19	14	(*)	16
Soybeans:				
On contour.....	27	17	18	20
Not on contour.....	23	17	(*)	18

*No comparison available.

total farm operating expense and which results not only in the maintenance of soil and water resources but also in higher crop yields.

Results from Edwardsville Area (Wheat, Dairy, and Poultry). The studies for 1939 in the Edwardsville Area include all of Madison county and the Shiloh-O'Fallon Soil Conservation District in St. Clair county. This area is located in the wheat, dairy, and poultry type-of-farming section of Illinois and is adjacent to the metropolitan area of St. Louis. Winter wheat is the major crop, and dairying is the major livestock enterprise. The land in these two counties ranges from level land with no erosion problems to rough rolling land with serious erosion problems. Timber, prairie, and bottomland soils are found on the farms included in this study, but timber soils are predominant. Generally speaking, the land is of such a type that a considerable proportion of most of the farms must be kept in hay and pasture in order to control erosion and maintain soil fertility. Since the size of farms in this area is comparatively small, the hay and pasture must be utilized by livestock in order to secure adequate farm incomes.

A total of 90 farm records was secured in the Edwardsville Area for 1939. Of this number, 53 were farms cooperating with the soil conservation program and 37 were neighboring farms not cooperating with the program. The soil conservation plan was initiated on 4 of the cooperators' farms in 1935; 11, in 1936; 15, in 1937; 15, in 1938; and 6, in 1939. For purposes of analysis, the cooperating and noncooperating farms were divided into three groups on the basis of soil ratings. The ratings were computed from the soil type, percent of slope, and degree of erosion. The average soil rating was 6.14 on the cooperators' farms and 5.99 on the noncooperators' farms. (Soil ratings ranged from 1, the best, to 10, the poorest.) The cooperators' farms averaged 163 acres in size as compared with 161 acres for the noncooperators' farms. The 1939 farm record data for the Edwardsville Area exhibited certain trends and facts which are stated below as general conclusions:

1. Although the conservation cooperators had farm plans which were still in a transition stage, their average incomes were comparable to those on the noncooperating farms.¹ (Net incomes were \$9.87 an acre on the cooperators' farms and \$9.84 an acre on the noncooperators' farms.) With the better land use and greater emphasis on soil conservation and soil improvement, incomes on the cooperating farms should increase in relation to those on the noncooperating farms as time passes and as the farm business becomes adjusted to the increased

¹There was no significant difference in Agricultural Adjustment Administration payments between the soil conservation cooperators and the noncooperators.

TABLE 4.—SOIL RATINGS, LAND USE, AND CROP YIELDS, EDWARDSVILLE AREA, 1939

Items	Farms cooperating			Farms not cooperating		
	High soil rating	Medium soil rating	Low soil rating	High soil rating	Medium soil rating	Low soil rating
Number of farms.....	6	22	23	9	10	16
Average soil rating.....	4.23	5.66	7.05	3.76	5.83	6.86
Percent of tillable land in:						
Grains.....	58	55	50	60	56	55
Soil-building legumes.....	27	31	36	21	30	24
Crop yield index (average of all farms = 100).....	113	105	90	103	98	98

production of erosion-control and soil-improvement crops. In the meantime, these conservation cooperating farms are maintaining their soil resources as a heritage for future generations.

2. The conservation program entails additional expenses for items such as limestone, phosphate, fertilizer, legume seeds, fencing, terraces, and other necessary means of erosion control and soil improvement. Nevertheless, the total farm expenses an acre in this area averaged no higher on the conservation cooperating farms than on the noncooperating farms, in large part due to the fact that the conservation cooperating farmers have made an effort to do much of the work in connection with the conservation program during their spare time and without additional outlays and to the fact that they apparently have curtailed expenditures for other items in order to achieve the goal of soil conservation and soil improvement on their farms.

3. On the bases of soil rating, size of farm, and proportion of land tillable, the conservation cooperators have made considerable advancement in the adjustment of their land use to their soil resources, especially in comparison with the noncooperating farms.

4. A wide variation exists in size of farm and quality of soil resources available on these farms in this area; and in order to have an income sufficient for a good standard of living, the operators of the small, rough-land farms must do an especially good job of adjusting their land use to their soil resources and, furthermore, must utilize efficiently the crops grown on the farm.

5. Evidently the operators on farms of *medium* soil ratings have not recognized their soil-conservation and soil-erosion problems to the extent that farmers on the farms with *low* soil ratings have, and the former have not adjusted their land use and system of farming accordingly because the net earnings in 1939 were consistently lower on the farms with *medium* soil ratings than on the farms with *low* soil ratings.

6. Tenure problems in this area center primarily on the *part-owner-operated* farms and on the *unrelated-tenant-operated* farms. Field renting is common on the part-owner-operated farms; and the field or fields operated in addition to the farm on which the operator resides are cropped unsparingly, are rapidly depleted of their natural resources, and are subject to serious erosion problems. Many of the tenant farmers who are not related to the owner of the farm do not have sufficient equipment to meet the legal regulations to permit them to produce milk for the St. Louis fluid milk market. As a result, their farms tend to be operated as grain farms, and insufficient erosion-resisting crops are grown to control erosion and to maintain or improve soil fertility.

7. In the analysis of the total livestock enterprise, large quantities of good quality legume and nonlegume roughage were utilized efficiently by livestock on many farms, and earnings on these farms were maintained at a high level.

8. Dairy cattle made more efficient use of roughages in this area than did beef cattle. On the average, roughages accounted for 59 percent of the cost of feed fed dairy cattle as compared with 49 percent of the cost of feed fed beef cattle. This area is adjacent to a whole milk market; farms are small, and soils require the production of large quantities of roughage in order to control erosion and conserve the land. Dairy cattle are more adaptable and the dairy enterprise itself results in higher net farm incomes than does the beef cattle enterprise in this area. Returns per \$100 feed fed were \$173 and net incomes were \$1,673 per farm on the dairy farms as compared with returns of \$121 per \$100 feed fed and \$1,362 per farm on the beef farms.

9. The dairy cost analysis indicates that, by careful selection and culling of the herd, high milk production per cow can be secured on a high roughage ration

TABLE 5.—USE OF ROUGHAGES AS RELATED TO LIVESTOCK RETURNS AND FARM INCOMES, EDWARDSVILLE AREA, 1939

Items	45 high roughage-feeding farms	45 low roughage-feeding farms
Percent of total feed value that was roughages.....	52	32
Value of feed fed all livestock.....	\$1 410	\$1 414
Returns per \$100 feed fed.....	163	160
Net receipts per farm.....	1 650	1 551
Acres per farm.....	159	169
Average soil rating.....	6.29	5.90

TABLE 6.—USE OF ROUGHAGES RELATED TO DAIRY COSTS, EDWARDSVILLE AREA, 1939

Items	24 high roughage-feeding farms	24 low roughage-feeding farms
Percent of feed value that was:		
Concentrates.....	26	40
Roughages.....	74	60
Feed cost per cow.....	\$ 53	\$ 62
Total net cost per cow.....	121	126
Pounds of 3.5 percent milk per cow.....	7 960	8 048
Feed cost per 100 lb. milk produced.....	\$.65	\$.77
Total cost per 100 lb. milk produced.....	1.49	1.58

and that milk can be produced at a relatively low cost, especially from the standpoint of "out-of-pocket" costs. Based on the herds studied, milk was produced more efficiently and at lower costs by the high roughage-consuming herds.

10. More consideration might be given to the use of native flocks of sheep in order to utilize some of the roughages produced as a result of the adoption of the conservation program, particularly on the rougher lands. On the average, 85 percent of the value of feed fed the sheep in this area was roughages, and the 16 flocks returned \$128 per \$100 of feed fed, after making a reasonable charge for roughages which have little or no market value.

11. The products of the well-planned conservation program, that is, good-quality legume hays and legume and nonlegume pastures, can be utilized profitably through well-managed livestock enterprises with the result that soil resources will be protected and desirable farm incomes will follow.

Results from Freeport Area (Mixed Livestock). Less detailed farm account records were secured from a number of the soil conservation cooperators in the Freeport Soil Conservation Project Area. This area is located in a rolling-

to-rough section of Stephenson county in the northwest part of Illinois where much of the land is subject to either sheet or gully erosion. Data from the Freeport Area show that the soil conservation cooperators have somewhat smaller farms, less tillable lands, and lower land values than do neighboring noncooperators. However, the cooperators have a sounder system of land use as is evidenced by the fact that a smaller proportion of their farms is in grain crops and a larger proportion in soil-building legumes. On three soil conservation cooperators' farms selected for a case study, a comparison was made of various factors for the 4 years previous to the inauguration of the conservation program with the 4 years since the inauguration of the program. Before the program started, these farms, which averaged 150 acres in size, had an average of 23 percent of their land in legumes as compared with 35 percent after the program was in progress. The improved land use and land treatment plus contouring, terracing, and other soil and water conservation practices resulted in corn yields which increased from 50 to 58 bushels an acre.¹ Improved pastures, improved quality of hay, and more legume hay and pasture contributed materially to the increased efficiency of the livestock enterprises on these farms, as is judged by returns of \$124 per \$100 feed fed during the first period and returns of \$164 per \$100 feed fed during the second period. Total farm operating costs increased due to expenditures for limestone, phosphate, fertilizers, legume and grass seeds, terracing, structures, fences, etc.; however, gross incomes were also higher; and, after an allowance was made for price changes during the two periods, these three farms had an average net income of \$948 more per farm for the period after the inauguration of the soil conservation program than they had in the period before the inauguration of the program.

The economic studies to date thus show that the conservation program, involving improved land use and crop rotations, better land treatment (including the use of limestone, phosphate, and fertilizers) plus contouring, strip cropping, terracing, the use of grass waterways, and other soil and water conservation practices results in higher farm incomes and also helps to maintain the soil resources and capital assets of the farm for future generations.

E. L. SAUER

INFLUENCE OF THE WEATHER ON DEMAND FOR CERTAIN HORTICULTURAL PRODUCTS

The weather affects the appetites of people, and influences not only the quantity of food they will eat, but also the kinds of food they prefer. Mention of a few fruits and vegetables, in relation to their demand under different weather conditions will illustrate the latter point.

Watermelons are eaten in large quantities when the weather is hot, but there is very little demand for them when the weather is cool. If an untimely cool spell, lasting for a week or ten days, occurs in the midst of the melon season, carloads accumulate on the team tracks in every large produce terminal, and sometimes it becomes necessary to establish embargoes preventing additional cars of watermelons from entering the city. Such a situation has not been an unusual occurrence in New York.

Because the normal season for hot weather in northern markets and the harvest season for Georgia watermelons usually coincide, shipments of these southern melons to the north are usually in heavy demand. On the other hand, Illinois watermelons, maturing later, are likely to be in greatest abundance after the hottest weather, and hence the greatest demand has passed. This situation is likely to result in surplus supplies and ruinous prices for the Illinois crop.

¹There was one drouth year (1934) in this area in the 4 years before the conservation program was adopted (1932-1935) and one drouth year (1936) in the 4 years following the adoption of the conservation program (1936-1939). Therefore, each period had 3 years of good corn yields.

However, in years when the hot weather comes late, Illinois watermelons meet with ready sale.

The effect of the weather upon the demand for muskmelons is somewhat similar, though not so pronounced, and the demand for the Illinois crop is not so likely to be adversely affected. Illinois muskmelons normally mature somewhat earlier than watermelons, and hence are more likely to mature while the weather is still hot and the demand active.

Fresh peaches, also, seem to be more appreciated in hot weather than in cold. The Illinois Elbertas normally ripen during weather favorable for heavy peach consumption, and hence meet with better demand than peaches from localities where the ripening season is later and the weather cooler.

The demand for lemons fluctuates widely under different conditions of weather—the hotter the weather the greater the demand. Enormous prices are sometimes paid for a car or two of lemons when the weather is hot and the visible supplies on the given market are scarce.

In hot weather, salad vegetables, that may be eaten without cooking, are in especial favor and are given preference over “greens” and other vegetables that must be cooked.

On the other hand, certain fruits and vegetables are in greater demand when the weather is cool. Grapes and apples are the most prominent fruits in this group. Attempts to establish grape production in the south for shipment of fresh Concord to northern markets early in the season have failed largely because the markets would not absorb grapes in large quantities during hot weather. The northern Illinois, Michigan and New York Concord ripen when the weather is getting cool enough for people to relish grapes in large quantities.

The demand for apples develops rapidly when the weather turns cool in the fall. Attempts to move large quantities of this fruit into consumption during hot weather are usually failures. In seasons when the late fall or early winter varieties ripen during a hot spell it is very difficult to move them into immediate consumption, but as soon as a turn to cooler weather takes place, many more people begin eating apples. Hot weather seems to have a worse effect on demand for apples than formerly; so much so, that the market for summer and early fall varieties is very easily over supplied, and the relative profitableness of early and late varieties has changed materially.

Among vegetables, “greens” are in strong demand in the cool weather of spring and again in the fall, but are not relished very much during the summer. Rutabagas are in demand in the fall and winter, but very few people seem to care for them when the home-grown spring crop of excellent quality is available just when the weather is getting hot in June.

J. W. LLOYD

Footnotes for the following page:

1-12 The first source is for annual data; the second is for current data from which tables may be brought to date.

¹Survey of Current Business, 1936 supplement, U.S. Dept. of Commerce; subsequent monthly issues. Same as footnote 1. ²Illinois Crop and Livestock Statistics, Circular 438 (1937); monthly mimeographs of Statistical Tables for Illinois Crop Report, converted from 1910-14 = 100 to 1924-29 = 100 by multiplying by .7151. ³Agricultural Situation, Bureau of Agricultural Economics, U.S.D.A.; Agricultural Situation, converted from 1910-14 = 100 to 1924-29 = 100 by multiplying by .6486. ⁴Calculated from data furnished by Bureau of Agricultural Economics; Survey of Current Business, seasonally adjusted. ⁵Calculated by Department of Agricultural Economics, University of Illinois, seasonally adjusted. Data from Farm Income, Bureau of Agricultural Economics; B.A.E. monthly mimeograph. Receipts from Sale of Principal Farm Products (government payments not included). ⁶Obtained by dividing Index of Illinois Farm Income (column 6) by Index of Prices Paid by Farmers (column 4). ⁷Monthly Indexes of Non-Agricultural and National Income, Supplement, August, 1937, B.A.E.; Price and Demand Situation, or Agricultural Situation. ⁸Survey of Current Business, 1938 Revision; subsequent monthly issues, unadjusted for seasonal variation. ⁹Federal Reserve Bulletin of Federal Reserve Board, September, 1933 and subsequent issues; Survey of Current Business, seasonally adjusted. ¹⁰Preliminary estimate. ¹¹Illinois Crop and Livestock Statistics, Cir. 438; Monthly price releases, State Agricultural Statistician.

TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural income ⁸	Factory payrolls ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. In money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period.....	1926	1926	1924-29	1924-29	1924-29	1924-29	1924-29	1924-29	1923-25	1923-25
1929.....	95	105	104	99	103	103	104	107	110	119
1930.....	86	88	89	94	83	87	93	100	89	96
1931.....	73	65	62	80	58	58	72	87	68	81
1932.....	65	48	41	69	43	43	62	68	47	64
1933.....	66	51	45	71	49	51	72	63	50	76
1934.....	75	65	61	80	57	55	69	72	64	79
1935.....	80	79	82	81	64	65	80	77	74	90
1936.....	81	81	86	80	74	82	103	90	86	105
1937.....	86	86	96	84	80	87	103	95	102	110
1938.....	79	69	69	80	72	81	101	88	78	86
1939.....	77	65	65	78	72	81	97	93	91	105
1939 June.....	76	62	62	78	64	72	92	92	87	98
July.....	75	63	61	78	63	70	90	92	84	101
August.....	75	61	58	77	66	62	80	93	90	103
Sept.....	79	69	71	79	74	78	98	93	94	111
Oct.....	79	67	67	79	76	101	127	95	102	121
Nov.....	79	67	67	79	76	93	117	96	102	124
Dec.....	79	68	66	79	79	99	125	97	104	128
1940 Jan.....	79	69	68	79	79	100	126	96	98	119
Feb.....	79	68	67	79	83	100	126	95	98	109
Mar.....	78	68	66	79	76	98	124	95	98	104
Apr.....	79	69	67	80	82 ¹¹	76	96	94	96	102
May.....	78	68	69	80	...	...	...	...	96	106
June.....	78	66	65 ¹¹	80	...	...	...	...	...	114

TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS¹²

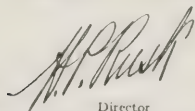
Product	Calendar year average			June 1939	Current months		
	1924-29	1938	1939		April	May	June
Corn, bu.....	\$.81	\$.45	\$.43	\$.44	\$.54	\$.60	\$.59
Oats, bu.....	.42	.24	.28	.29	.38	.35	.30
Wheat, bu.....	1.30	.68	.67	.66	.97	.87	.74
Barley, bu.....	.66	.53	.41	.41	.48	.47	.44
Soybeans, bu.....	1.94	.75	.74	.80	.97	.92	.73
Hogs, cwt.....	9.97	8.06	6.56	6.10	4.95	5.50	4.80
Beef cattle, cwt.....	8.57	7.68	8.18	7.90	8.20	8.40	8.30
Lams, cwt.....	12.22	7.76	8.18	8.10	8.90	8.90	8.90
Milk cows, head.....	78.00	60.00	63.00	64.00	65.00	65.00	69.00
Veal calves, cwt.....	11.27	8.89	9.15	8.40	9.50	9.70	8.70
Sheep, cwt.....	6.52	3.36	3.44	3.40	3.70	3.60	3.05
Butterfat, lb.....	.42	.25	.23	.21	.26	.25	.24
Milk, cwt.....	2.32	1.66	1.59	1.40	1.55	1.50	1.40
Eggs, doz.....	.30	.19	.16	.12	.13	.14	.13
Chickens, lb.....	.21	.15	.13	.13	.13	.14	.14
Wool, lb.....	.36	.21	.25	.24	.28	.30	.30
Apples, bu.....	1.59	.95	1.07	1.35	1.25	1.35	1.50
Hay, ton.....	13.38	7.65	6.05	5.70	7.00	7.70	6.20
Potatoes, bu.....	1.39	.73	.80	.90	.90	.90	1.10

¹⁻¹²For sources of data in tables see previous page.

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 Director, Extension Service in Agriculture and Home Economics, University of Illinois.

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G. L. Jordan, Editor

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SOURCES AND USES OF ILLINOIS FARMERS' INCOME, 1939

During 1939, 212 Illinois farm families kept records of their businesses, their family receipts, and their expenses in both farm and home accounts in cooperation with their County Farm Bureaus, their County Home Bureaus, and the Departments of Agricultural Economics and Home Economics of the University of Illinois. In general, the living expenses of these families bore a close resemblance to their cash incomes for the year, and this resemblance indicated that adequate incomes enable farm families to enjoy a good standard of living.

Sources of net cash receipts. Cash income from the farm business was the most significant source of income, although other sources, such as family labor off farm, earnings on investments, other business, and gifts and inheritances, contributed a part. Some families in the lower income groups were able to meet living expenses only by borrowing because they had expanded the size of their farming businesses.

In order to secure a sufficient income for attaining a desirable level of living, both the size of the farm business and the efficiency with which it is managed are of prime importance. From the average number of acres shown in Table 1, even the low-income families apparently had fairly large farms. However, a difference of 101.4 acres between the low-income and the high-income groups indicates that the size of the farm is important.

Differences in net cash receipts were not entirely due to variations in size of business. This fact is shown by the rate earned on the total farm investment. The rate earned was less for the group with cash receipts over \$4,000 than for the group with cash receipts from \$3,000-\$3,999. However, this variation can be partially explained by the fact that the investment was \$127.51 per acre for the former and \$118.61 per acre for the latter.

Use of income. The use made of the incomes on these farms was classified into purchased family living, life insurance premiums, payments on debts in excess of borrowings, new investments in excess of investments used, interest payments, and increase in cash in bank and on hand. Each group had a small

TABLE 1.—SOURCES OF NET CASH RECEIPTS

Item	Average of 212 families	Net cash receipts				
		Under \$1 000	\$1 000-1 999	\$2 000-2 999	\$3 000-3 999	\$4 000 and over
Number of farms.....	212	24	96	58	18	16
Acres in farm.....	226.6	176.1	208.1	243.6	292.5	277.5
Rate earned on farm investment.....	8.26	7.30	8.01	8.48	9.94	8.52
Farm cash balance.....	\$1 156	\$341	\$ 703	\$1 430	\$2 051	\$3 106
Family labor off farm.....	163	17	110	228	128	503
Earnings on investments.....	45	5	38	46	154	22
Other business (net).....	33	-12	-1	85	89	51
Gifts and inheritance.....	66	16	31	45	192	282
Investments used in excess of new investments.....			30			
Borrowing in excess of debt payments.....	293	335	376	174	170	302
Increase in cash in bank and on hand.....		16	18			
Average total net cash receipts.....	\$1 756	\$718	\$1 305	\$2 008	\$2 784	\$4 266

TABLE 2.—USE MADE OF CASH INCOME

Item	Average of 212 families	Net cash receipts				
		Under \$1 000	\$1 000-1 999	\$2 000-2 999	\$3 000-3 999	\$4 000 and over
Number of records.....	212	24	96	58	18	16
Number in the family.....	3.9	3.5	3.7	4.2	4.3	4.4
Number in the household.....	4.1	3.7	4.0	4.2	4.4	4.6
Purchased family living.....	\$1 248	\$581	\$1 051	\$1 357	\$1 745	\$2 480
Life insurance premiums.....	141	51	107	166	230	277
Payments on debts in excess of borrowings.....	.....	.....	.....	.....	.....	.....
New investments in excess of investments used.....	70	14	.....	72	70	752
Interest payments.....	196	37	114	232	520	429
Increase in cash in bank and on hand.....	71	.....	.....	151	214	282
Amount unaccounted for.....	30	35	33	30	5	46
Total cash used.....	\$1 756	\$718	\$1 305	\$2 008	\$2 784	\$4 266

TABLE 3.—NONCASH INCOME FROM THE FARM

Item	Average of 212 families	Net cash receipts				
		Under \$1 000	\$1 000-1 999	\$2 000-2 999	\$3 000-3 999	\$4 000 and over
Number of records.....	212	24	96	58	18	16
Money value of farm-furnished foods ^a	\$337	\$302	\$326	\$351	\$364	\$371
Estimated use value of house ^b	255	176	221	255	321	504
Money value of farm-furnished fuel, soap, etc.....	19	20	18	22	14	17
Total noncash income.....	\$611	\$498	\$565	\$628	\$699	\$892

^aValued at retail prices.^bRental value of house disregarding any cash expenses on the house.

amount which was not accounted for in their records. These families used more than one-half (57.9 percent) of their net cash receipts to pay for their living expenses (Table 2). The proportion of available cash spent for living fell off as the net cash receipts increased.

The proportion of net cash receipts used for life insurance premiums, debt payments, new investments, and increases in cash in bank and on hand was more for the high-income group than for the low-income groups.

Value of farm-furnished goods. A considerable part of the living of the farm family is represented by food, fuel, and housing furnished by the farm. For the 212 farm families, these items averaged \$611, or nearly one-third (33 percent) of the total money value of living for the year (Table 3). The farm furnished foods, including dairy and poultry products, meats, cereals, vegetables and fruits and valued at retail prices, had an average value of \$337 per family; this amount was equivalent to over one-half of the total goods and service furnished by the farm and to 59.2 percent of the total food bill. With an average of 4.1 persons in the household, each person received \$82 worth of food from this source.

The estimated use value of the house amounted to \$255 for the 212 families. This value was based upon what similar homes would rent for in nearby towns, the investment in the house, and its plumbing, lighting, and heating facilities (Table 3).

E. N. SEARLS

THE INFLUENCE OF AAA PROGRAMS ON LAND USE AND FARM INCOMES, ILLINOIS ACCOUNTING FARMS, 1938 AND 1939

Farm earnings in 1938 were practically the same on the 534 farms which received no benefit payments for participating in AAA programs as on the aver-

TABLE 1.—BENEFIT PAYMENTS RECEIVED BY ACCOUNTING FARMERS
IN ILLINOIS, BY AREAS, 1936-1939
(Payments per Acre for Cooperating Farms)

Farming-type area	1936	1937	1938	1939
Area 1.....	\$.68	\$.99	\$1.34	\$2.01
Area 2.....	.86	1.03	1.19	2.95
Area 3.....	1.21	1.09	1.27	3.25
Area 4.....	1.11	1.14	1.40	3.04
Area 5.....	.93	1.02	1.14	1.85
Area 6.....	.66	.92	.79	1.26
Area 7.....	.58	.81	.89	.85
Area 8.....	.81	.97	.73	1.72
Weighted average.....	\$.91	\$1.02	\$1.15	\$2.25

age of all the 2,499 Illinois accounting farms. In 1939, however, earnings for the 157 noncooperating farmers averaged 7.2 percent on the capital invested as contrasted with 8.4 percent for the average of the 2,657 accounting farms. The average for all accounting farms included records from those farmers who received payments as well as from those who did not.

A comparison of the farmers who cooperated in the 1936 and 1937 programs with those who did not cooperate shows that the return which they received on the capital invested was the same for both groups.¹

Earnings on the cooperating farms were higher than were those on the noncooperating farms in 1939 but were practically the same in 1936, 1937 and 1938. Benefit payments were much higher in 1939 than in the three preceding years, and this fact accounts, in part at least, for the difference in earnings. The average benefit payment per acre for those farms receiving payments was as follows: 1936, \$.91; 1937, \$1.02; 1938, \$1.15; and 1939, \$2.25 (Table 1). In 1939 many farmers received payments which they earned for participating in both the 1938 and 1939 programs; the payments were entered in the account books in the year they were received rather than in the year they were earned. Payments received in the years prior to 1939 were largely for participation in the programs of the previous year; 1939 was the first year in which any large amount of benefit payments was received during the year of participation. In 1939 the percentage of all the accounting farmers receiving benefit payments ranged from 90 percent in the St. Louis Dairy and Wheat Area to 95 percent in the Grain and Livestock Areas of central Illinois. Only 77 percent of all the cropland in Illinois was signed up on farm plans for participation in the 1939 program; therefore, a much higher percentage of accounting farmers participated in the program than of all farmers in the state.

An analysis of the influence of AAA programs on Illinois farms must include two points of view: (1) the immediate effect on farm incomes and (2) the long-time effect on soil maintenance and erosion control. The immediate effect on farm incomes is best measured by the net return on the capital invested in the business, and the long-time effect on soil maintenance is best indicated by the use to which the land was put.

The average rate earned on investment was calculated by dividing the net farm earnings by the capital invested in the business. The net farm earnings is calculated by adding the value of farm products used in the household and the inventory increases to the cash balance, and by subtracting the value of unpaid labor from the resulting total. The cooperating farmers were credited with the gains arising from the loan programs since the sealed grain was inventoried at the loan value and unsealed grain at the market value. The closing inventory for 1939 was higher for sealed grains than for unsealed grains.

¹"Effect of the AAA on Farm Organization and Operation," *Journal of Farm Economics*, Vol. XXI, No. 1, February, 1939.

TABLE 2.—ANALYSIS OF ILLINOIS ACCOUNT RECORDS WHEN GROUPED ACCORDING TO PARTICIPATION IN AAA PROGRAMS, 1938 AND 1939

Item	1938		1939	
	No benefit payments	All accounting farms	No benefit payments	All accounting farms
Number of farms per year.....	534	2499	157	2657
Acres per farm.....	222	232	218	237
Percent of land area tillable.....	83.8	83.6	81.4	83.8
Total investment per acre.....	\$126	\$124	\$123	\$126
Gross receipts per acre.....	17.95	17.84	19.10	20.97
Expenses per acre.....	10.00	9.95	10.20	10.26
Net income per acre.....	7.95	7.89	8.90	10.71
Rate earned on investment (percent).....	6.2	6.3	7.2	8.4
Use of tillable land (percent)				
Corn.....	38.2	31.0	38.3	29.8
Small grain.....	27.5	25.3	28.1	23.1
Soybeans.....	7.2	6.0	6.2	6.8
Hay and pasture.....	23.1	31.6	23.3	32.1
Other crops.....	4.0	6.1	4.1	8.2
Yield per acre (bushels)				
Corn.....	50.3	52.0	58.7	60.2
Oats.....	33.6	33.2	29.5	33.0
Feed fed per acre to productive livestock.....	\$ 6.81	\$ 7.12	\$ 8.22	\$ 7.93
Returns per \$100 feed fed.....	196	189	157	163
Man labor cost per crop acre.....	\$ 6.06	\$ 6.54	\$ 6.35	\$ 6.75
Horse and machinery cost per crop acre.....	4.15	4.41	4.37	4.69

An analysis of the accounting records for 1938 and 1939 indicates that the farmers who received no benefit payments had a higher percentage of their tillable land in corn and small grain and a smaller percentage in hay, pasture, and other crops than did the farmers who received payments (Table 2). The noncooperating farmers had 38 percent of their tillable land in corn as contrasted with 31 percent for all the accounting farmers in 1938 and 30 percent for all the accounting farmers in 1939. In each year the percent in hay and pasture was 23 for the noncooperating farmers and 32 for all the accounting farmers. Obviously, the cooperating farmers with the smaller percent in soil-depleting crops were removing less fertility from their farms than were the noncooperating farmers, and the former group stored up plant food and organic matter which will bring higher crop yields in future years.

The noncooperating farms were slightly smaller than was the average of all the accounting farms but had about the same grade of soil since the percentage of land area tillable and the total investment per acre were similar. The amount of livestock per farm on the two groups showed no consistent difference as the feed fed per acre was slightly larger on the noncooperating farms in 1939 but slightly smaller on these same farms in 1938. The returns for each \$100 worth of feed fed to productive livestock were larger on the noncooperating farms than on the average of all the farms in 1938 but were smaller on the noncooperating farms than on the average of all the farms in 1939.

In 1938, when the rate earned on investment was the same for both groups the gross income and the expenses per acre were about the same for noncooperating farms as for the average of all the farms. In 1939, however, the gross income was \$1.87 an acre less on the noncooperating farms than on the average of all the farms, but the expenses were only 6 cents an acre less for the same groups. The average increase in benefit payments in 1939 over 1938 was \$1.10 an acre; this increase largely accounts for the difference between the cooperating and noncooperating farms in gross income.

Labor and power expenses per crop acre are consistently lower on the non

TABLE 3.—ANALYSIS OF ILLINOIS ACCOUNT RECORDS BY FARMING-TYPE AREAS, WHEN GROUPED ACCORDING TO PARTICIPATION IN AAA PROGRAMS, AVERAGE FOR 1938 AND 1939

Item	Area I		Area II		Area III		Area IV		Area V		Area VI		Area VII		Area VIII	
	Non-coop.	All farms	Non-coop.	All farms	Non-coop.	All farms	Non-coop.	All farms	Non-coop.	All farms	Non-coop.	All farms	Non-coop.	All farms	Non-coop.	All farms
Number of farms per year.....	17	82	51	418	63	505	98	810	50	316	42	280	14	99	9	66
Acres per farm.....	204	178	217	207	213	248	239	265	249	251	190	205	190	221	235	211
Percent of land area tillable.....	82.6	78.4	83.9	82.1	79.3	80.4	88.5	90.3	73.4	79.6	82.9	81.3	81.7	81.7	86.2	86.9
Total investment per acre.....	\$150	\$154	\$158	\$152	\$143	\$150	\$160	\$165	\$102	\$108	\$ 92	\$ 85	\$ 71	\$ 62	\$ 68	\$ 75
Gross receipts per acre.....	\$ 76.76	\$ 25.15	\$ 22.78	\$ 22.89	\$ 20.52	\$ 23.33	\$ 21.32	\$ 23.04	\$ 16.45	\$ 18.16	\$ 17.06	\$ 15.32	\$ 11.23	\$ 11.08	\$ 10.37	\$ 12.70
Expense per acre.....	14.21	15.06	12.08	11.76	10.99	11.12	10.89	11.03	8.85	9.31	9.52	8.79	7.73	7.08	6.28	7.36
Net income per acre.....	12.55	10.09	10.70	11.13	9.53	12.21	10.43	12.01	7.60	8.85	7.54	6.53	3.49	4.00	4.09	5.34
Rate earned on investment (percent).....	8.3	6.5	6.7	7.3	6.6	8.1	6.5	7.2	7.4	8.1	8.1	7.6	4.9	6.5	6.1	7.1
Use of tillable land (percent)																
Corn.....	37.6	33.9	44.9	34.7	46.6	37.4	44.7	35.4	37.3	28.9	26.7	19.0	27.7	22.4	26.5	24.2
Small grain.....	26.2	26.7	26.2	25.4	22.9	22.1	24.5	22.9	30.7	25.8	42.7	34.4	23.0	17.6	42.1	28.4
Soybeans.....	5.7	2.0	2.4	2.8	5.4	6.5	12.7	12.1	8.8	8.7	2.6	2.1	1.8	2.4	5.2	3.0
Hay and pasture.....	28.1	35.1	25.3	33.3	23.2	28.5	14.6	22.7	20.4	30.1	23.4	36.4	38.3	46.4	19.5	32.1
Other crops.....	2.4	2.3	1.2	3.8	1.9	5.5	3.5	6.9	2.8	6.5	4.6	8.1	9.2	11.2	6.7	12.3
Yield per acre (bushels)																
Corn.....	65.6	61.3	66.1	66.9	62.4	65.4	58.7	63.5	55.0	57.0	46.9	46.0	38.3	37.6	36.4	43.2
Oats.....	41.5	39.3	37.7	39.9	35.8	37.2	36.3	38.2	33.5	31.1	26.8	28.6	18.5	22.0	12.5	21.1
Feed fed per acre to productive livestock	\$ 13.44	\$ 12.73	\$ 13.28	\$ 11.66	\$ 8.90	\$ 10.04	\$ 6.07	\$ 12.38	\$ 6.31	\$ 6.94	\$ 6.89	\$ 6.21	\$ 5.12	\$ 5.03	\$ 5.29	\$ 4.59
Returns per \$100 feed fed.....	170	172	151	160	167	172	181	175	176	180	179	184	188	180	175	178
Man labor cost per crop acre.....	\$ 8.39	\$ 10.07	\$ 6.74	\$ 7.38	\$ 6.89	\$ 6.97	\$ 5.38	\$ 5.67	\$ 6.62	\$ 6.97	\$ 6.44	\$ 6.92	\$ 5.99	\$ 6.26	\$ 3.78	\$ 5.01
Horse and machinery cost per crop acre.....	\$ 5.63	6.14	5.05	5.07	4.85	5.06	4.36	4.66	3.99	4.29	4.17	4.45	3.18	3.57	2.62	4.27

cooperating farms than on the cooperating farms, due in part to the fact that more acres were in crops on noncooperating farms than on cooperating farms of the same size. On many farms, the labor and machinery was available for normal operations; therefore, when the acreage in crops was reduced by participation in the AAA programs, there was not much opportunity to reduce the expenses for labor and machinery. Family labor constitutes the major portion of the total labor input on Illinois accounting farms. The man-labor cost per crop acre was 48 cents less in 1938 on the noncooperating farms than on the average of all the farms and 40 cents less in 1939 for the same two groups of farms. The comparable saving in horse and machinery expense per crop acre was 26 cents in 1938 and 32 cents in 1939.

However, the saving in operating expenses on the noncooperating farms was offset by higher crop yields on the cooperating farms. Corn yields were 1.7 bushels larger in 1938 and 1.5 bushels larger in 1939 on the average of all the farms than on the noncooperating farms. An advantage of 3.5 bushels of oats per acre was found in 1939 for the average of all the farms, but in 1938 oat yields were slightly larger on the noncooperating farms than those for the average of all the farms.

The account records indicate that the acreage of corn has been reduced below the level of maximum farm income on the cooperating farms but that the loss has been offset by benefit payments for the years 1936, 1937, and 1938 and more than offset by the payments received in 1939. Although expenses per crop acre for labor, horses, and machinery were less on the noncooperating farms than on the cooperating farms, crop yields were larger on the cooperating farms, and the additional acreage of legumes grown to comply with the programs will provide higher yields for the years ahead.

The effect of the programs on farm incomes was not the same in all areas of Illinois. This fact is indicated by the 1938 and 1939 averages when grouped by farming-type areas (Table 3). In both 1938 and 1939 the earnings on noncooperating farms were larger than were those on the average of all the farms in the Chicago and St. Louis Dairy Areas (Areas 1 and 6). Earnings for the average of the 2-year period were lower on the noncooperating farms in all the other areas. The maximum advantage of participation in the AAA program for the 2-year period was found in Area 3, the livestock section of western Illinois, and in Area 7, the mixed-farming section of south-central Illinois.

The average rate earned on investment was higher for the average of all the farms than for the noncooperating farms by the following percentages: Area 7, 1.6; Area 3, 1.5; Areas 4 and 5, .7; and Area 2, .6. Benefit payments per acre in 1939 ranged from a high of \$3.25 an acre in Area 3 to a low of \$.85 an acre in Area 7 (Table 1).

Why the AAA programs should affect farm earnings so differently in the eight areas is not entirely clear, but the following explanation is offered as a partial answer. Corn yields were higher on the noncooperating farms than on the cooperating farms in both of the major dairy areas where earnings were also higher on the noncooperating farms than on the cooperating farms. The percentage of tillable land in hay and pasture was higher on the noncooperating farms in these areas than on the noncooperating farms in most other sections of the state, and this high percentage may account in part for the high yields. Since the dairy areas are more nearly feed-deficit areas than are other parts of the state, the reduction in the corn acreage necessary for compliance seemingly had a more detrimental effect on earnings in these areas than in other areas. With the exception of Area 7, the major benefits from the programs in 1938 and 1939, as measured by the rate earned on investment, were found on the better land areas of central Illinois where the benefit payments received per acre were the largest.

P. E. JOHNSTON

THOUSANDS OF EX-TENANTS

Thousands of corn-belt tenant farmers are concerned about the present trend toward larger-sized farms. In recent years farm tenants have experienced growing competition for land, and thousands have been unable to rent desirable farms. More attention needs to be given to obtaining greater security for good tenants. Greater security for good tenants is an advantage to both the landowners and the tenants in establishing more profitable systems of farming and in conserving the soil and farm improvements. A good farm-lease agreement is one of the best solutions for this problem.

The prevailing custom of renting land for only one year at a time adds to the uncertainty of thousands of Illinois farm tenants securing a desirable farm to rent for the succeeding year. However, the length of time that one tenant occupies a farm in Illinois is relatively high as compared with that in other parts of the country. But the uncertainty remains even though the tenant is likely to remain on the same farm for a number of years under our prevailing system of renting land one year at a time. Annually, the problem is more or less prominent in the tenant's mind as to whether or not he will be able to continue on his farm for the succeeding year.

The growing competition to rent farms of the past 15 years can be traced mainly to mechanized farming and to the advantage of operating larger farms. Young men who wish to become established as farmers and tenants who are trying to rent more desirable farms add to the competition and bring insecurity to present tenants.

The introduction of mechanical power and larger-sized equipment makes it possible for the same number of farm workers to operate a larger acreage. Furthermore, the desire to have a full line of mechanized equipment means a heavy overhead expense unless the area operated is somewhat larger than it is on many farms. The advantage is obvious—more economical production can be secured if operators do a good grade of farming.

On the other hand, disadvantages fall on the men who wish to become established as farmers. The changes in type of power and equipment make it possible for one man to operate more land and for two men to work together to much better advantage than one man can alone. More serious from the standpoint of displacing farmers, however, is the tendency on the part of many men who have a full line of mechanized equipment to add to the acres they operate even beyond that which two men can handle. The number of farms of 400 or more acres has rapidly increased in Illinois in recent years. In 1925, a group of 225 farms included in farm accounting work in central Illinois averaged 232 acres in size, but in 1939 a similar group averaged 269.6 acres in size, or an increase of over 15 percent in the average size of farms included in this study of typical corn-belt farms.

Since farms are no longer increasing in numbers, except at the expense of cutting up existing farms, young men who wish to become established as farmers must compete directly with the tenants now on the land. If these young men are successful in becoming established as farmers, some of the older farmers must pass out of the picture. Although a certain number of farmers retire year after year, the number is not sufficient to open a way for all the young farmers to become established. Furthermore many of these young men are related to the owners of land, and consequently many tenant farmers are required to find a new farm to rent for the succeeding year if they are to continue farming because these young men take over their land.

Competition on the part of tenants who are trying to secure more desirable farms has increased because farms in the same community are showing greater differences in productivity year after year. Farms on land which was originally

of the same productivity frequently show a 100-percent spread in yields. This spread is principally due to the way the land has been handled over the past 50 years or more. Some of our best soil has been seriously exploited and allowed to become more weedy, and a general deterioration of improvements has taken place as the land has decreased in productivity. These differences in the productivity of land in the same community are becoming more and more recognized and lead to the desire on the part of tenants to secure those farms where the owner is giving full consideration to the maintenance of the soil. While owners wish to secure good tenants, many instances occur where farms are rented to the tenant who offers the highest rental, although he may not be as good a farmer.

Since the total number of farms in Illinois has not decreased during the last fifteen years, more small farms must have been established to counterbalance the many commercial farms that have increased in size. Most of these small farms that provide a large part of the income of many families have grown up near cities. But the operators of many such farms do not have the opportunity to develop a sufficiently large business to insure a good standard of living for their family. This situation is especially true when the uncertainty of work off the farm to supplement the farm income is considered. On the other hand, some city workers are moving to small farms as a means of supplementing income from industry and of obtaining greater security.

However, many of the farm tenants have become farm owners. Even in recent years, a few have become farm owners with their only help coming from their savings as tenants. This method of obtaining a farm was a common one 50 years ago. The settling of new areas, especially in the Dakotas, Minnesota, and Canada, made it possible for many tenants with small savings to become farm owners through the purchase of low-priced land or the homesteading of new land. Farmers leaving the old established farm areas like the corn-belt gave many young men in these areas an opportunity to become farm tenants and to take over farms which were vacated by tenants moving into new areas. At the present time, however, the agricultural area in the United States has ceased to expand. Now, the competition is for farms which are already established.

Many misconceptions are current in regard to the desirable size of farm. Many farm owners feel that the cost of keeping farms equipped with buildings and fences is so much that they are better off when they rent their farms in large tracts and have one operator handle the land which formerly was handled by two to five operators. Many tenants are capable of handling a large acreage; on the other hand, farm records show rather conclusively that many men on the larger areas do not have as good crop yields as those on smaller farms. With modern equipment men also tend to work long days in the field and give little attention to the handling of livestock. With less livestock on the farm, the land is apt to deteriorate more rapidly. Legume hay is not demanded as much now as formerly; hence, large-sized rented farms, unless carefully supervised, frequently lead to practically straight grain farming with little attention being given to the maintenance of the soil.

Landlords who do not wish to be bothered with the management of their properties are likely to rent their land to tenants who do not require that their landowner furnish a set of buildings. However, tenants who rent land without the use of buildings do not give that land as much consideration as they would that with a set of buildings. Best attention is given to the crops and the property of the men who furnish buildings.

A careful study of tenant farms shows that many landlords who have fully equipped farms of 160 to 200 acres may get larger returns on their investment after depreciation is allowed on their buildings and after the value to cover the land and buildings is assigned to the farm, than do the landlords who are renting

their farms in larger tracts. Good tenants can make more money by operating larger areas; but, on the other hand, when poor tenants operate a large acreage and receive low yields, they may have little or no profit above operating expenses.

Many farms throughout the corn belt might be more profitable if they were medium-sized for the area and were more carefully developed to include enterprises which will add to the income than if they have all the effort given to crop production. Landowners need to give more careful attention to the disadvantages as well as the advantages of the large farm when they make their plans for the future.

Careful studies of unoccupied land show that the yields on unimproved land are much lower than are those of improved land in the same community. These studies indicate again that the operator of improved land keeps livestock on that land, probably grows more legumes, and even hauls the byproducts of grain production to that land from the rented land. The only sure way for a landowner of an average-sized tract of land to know that his farm is going to be carried on in the most profitable way is to provide the buildings and to provide for the handling of livestock so that the farm organization will include not only livestock production but also crop production which is needed for growing livestock. This method is one of the most economical ways of maintaining the productivity of corn-belt land, provided the operator is a successful livestock producer.

The restriction of the size of farms to those of medium size for the area would do much to provide additional farms for young men who wish to become established as tenants or for desirable tenants who are now being forced off the land through the tendency to increase the size of farm. Practically every village throughout the corn belt has several farmers living in it who were unsuccessful in securing farms in the last few years; many of them are renting a small tract of land and are holding their equipment together in the hopes of becoming established again as tenants on good economically-sized units. A lot of our problems of rural unemployment would be solved if many of these men who are good operators were again permitted to return to farms of medium size either in place of less efficient operators or through the subdivision of some of the largest farm units.

Tenants need not feel that they must have a full line of mechanized equipment, especially in large-sized units. Many tenants are successfully cooperating with other tenants by owning some of the more expensive pieces of equipment in common or by exchanging labor with some of their neighbors and thus avoiding a large outlay of money for the purchase of every piece of equipment used on the farm. When we change from the custom-handling of many lines of farm work like silo filling, threshing, and the use of corn huskers, combines, and other expensive pieces of equipment, we will probably go too far, as far as the economy of production is concerned, toward every man's owning his own equipment. One alternative is the use of medium-sized equipment, or farmers can afford to own jointly or exchange the use of many of the more expensive pieces of equipment.

Discussion of desirable provisions in farm leases making for greater security for tenants and equitable arrangements between landowners and tenants leading to more profitable farming will be found in Circular 503 of the College of Agriculture of the University of Illinois.

H. C. M. CASE

CROP COSTS IN ILLINOIS IN 1939

For 20 years, a group of farmers in Champaign and Piatt counties in east-central Illinois has kept records of the cost of producing farm crops. In 1939 the farmers included in this cost study had farms which were about 80 acres

larger than those owned by the average farmer in the area, secured somewhat higher crop yields and had better managed farms than did the average farmers in the two counties, and had somewhat lower costs than did many of their neighbors.

Weather conditions in east-central Illinois in 1939 were very favorable for most crops with the exception of oats. Corn and soybeans produced excellent yields, but unfavorable weather for oats at filling time resulted in the lowest oat yield since the poor crop year of 1934.

Corn. In 1939 in Champaign and Piatt counties, operating expenses for producing an acre of corn were \$11.25 after credit was given for stalk pasture. Operating expenses included all production costs except the interest on the investment in land. When land charges were added, the net cost of producing an acre of corn was \$17.89. In 1939 on farms included in the study, the yield per acre was 62.5 bushels, and the average cost per bushel was 28.6 cents (Table 1). These figures may be compared with those for 1932-1936 when the yield per acre was 42 bushels and the average cost per bushel was 38.7 cents.

Oats. In 1939 the oat crop was combined on 55 percent of the oatland. The operating expenses for producing an acre of combined oats were \$5.72 and for producing an acre of threshed oats were \$7.05. When land charges were added, the net cost of producing an acre of combined oats was \$12.34 and of producing an acre of threshed oats was \$13.73. The yield of the combined oats per acre was 25.2 bushels, and the average cost per bushel was 49 cents. The yield of the threshed oats per acre was 38.3 bushels, or 13.1 bushels above that of combined oats. Although the production cost per acre was higher for threshed oats than for combined oats, the yield of threshed oats per acre was so much higher than the yield of combined oats per acre that the production cost of the threshed oats was 13.2 cents below that for combined oats, or 35.8 cents per bushel.

Soybeans. On the farms where cost records were kept in 1939, all of the soybean acreage sown for grain beans was harvested with the combine. The operating expenses for producing an acre of grain beans were \$8.57. When land charges were added, the net cost of producing an acre of grain beans was \$15.17. The yield per acre was 31.8 bushels, and the average cost per bushel was 47.7 cents.

Winter wheat. In east-central Illinois, the 1939 winter wheat crop was characterized by wide differences in yields per acre from farm to farm. The yield per acre varied from 39.3 bushels on the farm with the highest yield to 9.8 bushels on the farm with the lowest yield. The average operating expenses for producing an acre of wheat on all the farms in the study were \$7.01. When land charges were added, the net cost of producing an acre of wheat was \$13.71. The yield per acre was 26.2 bushels, and the average cost per bushel was 52.2 cents.

Alfalfa hay. In 1939 the net cost of the alfalfa crop per acre was \$19.61 when taxes and interest on land values were included and after a small credit for pasture and seed had been deducted. The average yield per acre was 2.82 tons in 1939 as compared with 1.96 tons in the 5-years 1933-1937. The average cost of producing a ton of alfalfa hay in 1939 was \$6.96. The pickup baler was used in the field to bale 32.2 percent of the alfalfa hay produced on the farms in the study. When the baler was used, the cost of baling was added to the cost of the crop, and the hay was credited at baled-hay prices.

Clover hay. The net cost of producing an acre of clover hay on farms in east-central Illinois in 1939 was \$12.20, this amount including a land charge of \$6.77. The yield per acre was .97 ton, and the average cost per ton was \$12.63.

TABLE 1.—THE COST OF PRODUCING CROPS IN 1939, CHAMPAIGN AND PIATT COUNTIES

Item	Corn	Com- bined oats	Threshed oats	Soybeans	Winter wheat	Soybean hay	Alfalfa hay	Clover hay
Growing costs per acre								
Man labor.....	\$ 1.10	\$.25	\$.27	\$.65	\$.47	\$.71	\$....	\$....
Power, truck, and machinery	2.91	.79	.73	1.60	1.23	1.72	....	....
Seed.....	.75	.85	.83	1.52	1.13	1.56	.45	.67
Fertilizer.....	.89	.66	.84	.46	.70	.81	.66	.26
Other expenses.....	1.50	.45	.94	.77	.66	3.13	2.21	.91
Total growing costs.....	\$ 7.15	\$ 3.00	\$ 3.61	\$ 5.00	\$ 4.19	\$ 7.93	....	....
Harvesting costs								
Man labor.....	\$.96	\$.37	\$ 1.04	\$.44	\$.36	\$ 3.77	\$ 3.79	\$ 1.91
Power, truck, and machinery	1.32	.39	1.45	.53	.51	2.66	4.58	2.18
Combine.....	....	1.14	....	1.45	.99	....	.06	1.14
Picker.....	.95	....	....	....	....	....	....	....
Pickup baler.....	....	....	....	....	....	....	1.34	.97
Threshing and twine.....	....	....	1.00	....	....	....	....	....
Total harvesting costs.....	\$ 3.23	\$ 1.90	\$ 3.49	\$ 2.42	\$ 1.86	\$ 6.43	....	....
Cost of growing and harvesting	\$10.38	\$ 4.90	\$ 7.10	\$ 7.42	\$ 6.05	\$14.36	\$13.09	\$ 8.04
Taxes.....	1.36	1.47	1.44	1.34	1.36	1.40	1.57	1.36
Interest on land.....	6.64	6.62	6.68	6.60	6.70	6.42	6.66	6.77
Total cost per acre.....	\$18.38	\$12.99	\$15.22	\$15.36	\$14.11	\$22.18	\$21.32	\$16.17
Net cost per acre*.....	\$17.89	\$12.34	\$13.73	\$15.17	\$13.71	\$22.18	\$19.61	\$12.20
Total income per acre...	\$28.60	\$ 6.45	\$10.31	\$23.11	\$16.15	\$11.13	\$23.01	\$11.43
Yield per acre, bushels or tons	62.5	25.2	38.3	31.8	26.2	2.2	2.8	1.0
Net cost per bushel or ton*...	\$.286	\$.490	\$.358	\$.477	\$.522	\$10.21	\$ 6.96	\$12.63

*After credit is allowed for byproducts such as straw and pasture and seed obtained from alfalfa and clover.

To obtain the net cost of clover hay per acre, a credit of \$3.89 was deducted from the gross cost for the value of seed harvested per acre in addition to \$.08 for pasture. The pickup baler was used in the field to bale 64.6 percent of the clover hay produced on the farms in the study.

Soybean hay. Only 25 percent of the farmers cut more than 2 or 3 mower-widths around their soybean grain fields and used these cuttings for hay. Therefore, in considering the cost of producing soybeans, some credit should be allowed for the fact that cutting borders of soybean fields is as much a method of opening up grain fields for the combine as a method of producing hay. No such credit was given the soybean hay crop as it is doubtful how much credit should be allowed. In 1939 the operating expenses for growing and harvesting an acre of soybean hay were \$15.76. When land charges were added, the cost of producing an acre of soybean hay was \$22.18. The yield per acre was 2.17 tons, and the average cost per ton was \$10.21.

Costs per acre and per bushel. Yields per acre had an important influence on the production costs per bushel or ton of crops grown in 1939; and, as yields of all the crops except oats were higher than the previous 10-year average, crop costs tended to be lower. Although high yields per acre tend toward high costs per acre, the net operating expenses of producing an acre of corn, excluding the land charge, were \$5.39 lower than were those for the 5 years 1925-1929—the net operating costs of oats per acre were \$1.49 lower, of soybeans, \$7.06 lower; of wheat, \$6.79 lower; and of alfalfa hay, \$1.95 lower. The improvement that has been brought about in the efficiency of crop production even within the past 10 years has been one of the chief elements in enabling farmers to lower the costs of field crops.

R. H. WILCOX

TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural income ⁸	Factory payrolls ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. In money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period.....	1926	1926	1924-29	1924-29	1924-29	1924-29	1924-29	1924-29	1923-25	1923-25
1929.....	95	105	104	99	103	103	104	107	110	119
1930.....	86	88	89	94	83	87	93	100	89	96
1931.....	73	65	62	80	58	58	72	87	68	81
1932.....	65	48	41	69	43	43	62	68	47	64
1933.....	66	51	45	71	49	51	72	63	50	76
1934.....	75	65	61	80	57	55	69	72	64	79
1935.....	80	79	82	81	64	65	80	77	74	90
1936.....	81	81	86	80	74	82	103	90	86	105
1937.....	86	86	96	84	80	87	103	95	102	110
1938.....	79	69	69	80	72	81	101	88	78	86
1939.....	77	65	65	78	72	81	97	93	91	105
1939 Aug.....	75	61	58	77	66	62	80	93	90	103
Sept.....	79	69	71	79	74	78	98	93	94	111
Oct.....	79	67	67	79	76	101	127	95	102	121
Nov.....	79	67	67	79	76	93	117	96	102	124
Dec.....	79	68	66	79	79	99	125	97	104	128
1940 Jan.....	79	69	68	79	79	100	126	96	98	119
Feb.....	79	68	67	79	83	100	126	95	98	109
Mar.....	78	68	66	79	76	98	124	95	98	104
Apr.....	79	69	67	80	82	76	96	94	96	102
May.....	78	68	69	80	80	90	112	95	96	106
June.....	78	66	65	80	70	71	89	97	98	114
July.....	78	66	67	79	71	...	...	...	96	116 ¹¹
Aug.....	77 ¹¹	65 ¹¹	69	79	...	...	...	...	...	118 ¹¹

TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS¹²

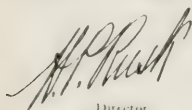
Product	Calendar year average			August 1939	Current months		
	1924-29	1938	1939		June	July	August
Corn, bu.....	\$.81	\$.45	\$.43	\$.38	\$.59	\$.59	\$.60
Oats, bu.....	.42	.24	.28	.24	.30	.26	.26
Wheat, bu.....	1.30	.68	.67	.57	.74	.66	.66
Barley, bu.....	.66	.53	.41	.36	.44	.42	.44
Soybeans, bu.....	1.94	.75	.74	.60	.73	.70	.63
Hogs, cwt.....	9.97	8.06	6.56	5.50	4.80	6.00	6.10
Beef cattle, cwt.....	8.57	7.68	8.18	7.70	8.30	8.60	9.10
Lambs, cwt.....	12.22	7.76	8.18	7.60	8.90	8.80	8.40
Milk cows, head.....	78.00	60.00	63.00	60.00	69.00	66.00	66.00
Veal calves, cwt.....	11.27	8.89	9.15	8.70	8.70	9.00	9.30
Sheep, cwt.....	6.52	3.36	3.44	2.80	3.05	3.05	3.10
Butterfat, lb.....	.42	.25	.23	.21	.24	.25	.25
Milk, cwt.....	2.32	1.66	1.59	1.50	1.45	1.60	1.65
Eggs, doz.....	.30	.19	.16	.13	.13	.13	.13
Chickens, lb.....	.21	.15	.13	.13	.14	.14	.13
Wool, lb.....	.36	.21	.25	.24	.30	.30	.28
Apples, bu.....	1.59	.95	1.07	.65	1.50	1.05	1.05
Hay, ton.....	13.38	7.65	6.05	5.40	6.20	5.20	6.30
Potatoes, bu.....	1.39	.73	.80	.75	1.10	.80	.75

¹⁻¹²For sources of data in tables see previous issue.

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ILLINOIS FARM ECONOMICS

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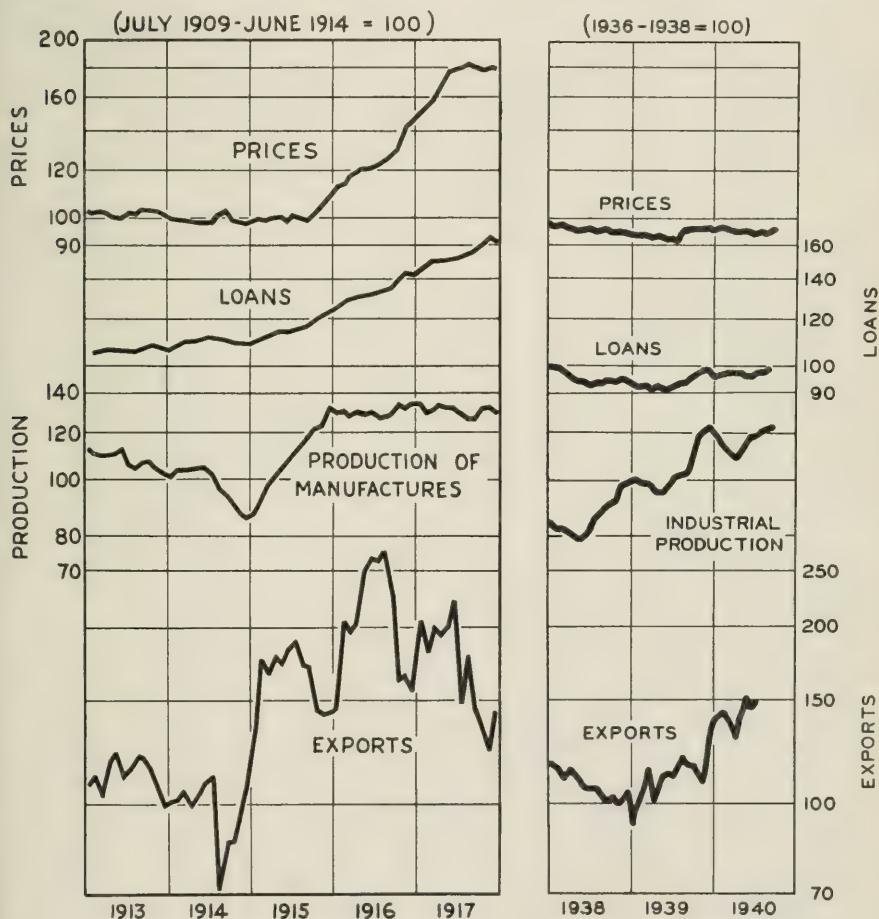
G. L. Jordan, Editor

October, 1940

Number 65

IS INFLATION IMMINENT?

Developments of recent months have brought the United States to the point where inflation may be imminent. Unless sufficient measures are taken by the government to avoid it, price inflation will probably be underway within the coming year. However, indications show that the authorities in Washington are cognizant of the dangers. Apparently, plans have been made which, it is hoped, will prevent inflation or at least control its amount. If price inflation does occur,



UNITED STATES WHOLESALE PRICES AND RELATED FACTORS

The trend of exports and industrial production continues upward. When production reaches capacity, a situation similar to that of December 1915 will prevail, and rigorous measures are likely to be necessary if inflation is to be avoided.

however, agricultural prices are not likely to rise as much in relation to nonagricultural prices as they did during the years 1916 to 1918.

Today opinion differs widely concerning the likelihood of inflation developing in the United States. Of course, two opinions are prevalent: (1) that we will have inflation and (2) that we will not have inflation. People who argue that there will be no inflation usually point out that we have had a very large volume of unemployed men and resources in recent years and that this unused productive capacity is more than ample to provide for rearmament. Our experience of recent years shows that the existence of a large deficit in the federal finances is not necessarily accompanied by inflation. Consequently, those who were forecasting inflation three to five years ago on the basis of the effect of an unbalanced budget have been discredited. Under such circumstances the chief danger is that people will tend to overlook the conditions under which an unbalanced budget is likely to be accompanied by inflation.

A great deal of uncertainty remains as to the magnitude of our rearmament efforts. The government publication, *Survey of Current Business*, September, 1940, states on page 3, "In contrast to an actual expenditure of 1.5 billion dollars for the army and navy during the fiscal year 1939-40, the funds already appropriated, with those now pending in Congress, will make available a cash total of over 6½ billion dollars for the current fiscal year. Additional funds will be required for training men called up from the National Guard, and through the selective draft legislation pending before Congress.¹ Furthermore, there will be loans made to industry for plant expansion by the Reconstruction Finance Corporation in an amount which cannot as yet be estimated."

Since the program is only well started, defense expenditures will be larger in future years than in 1940-41. Estimates vary, but in general they indicate that our national defense costs will average about 12 billion dollars yearly in the next five years as compared with about 1 billion dollars yearly prior to last year. Of course, these estimates are based on present price levels, and expenses would be correspondingly increased if inflation should develop. Then, too, the plans are subject to revision as to the number of ships, tanks, airplanes, and other war materials which may be needed. Reports indicate that the recent definite alignment of Japan with the Rome-Berlin Axis has resulted in the tentative drafting of a new set of defense plans involving even larger expenditures.

American industry will be called upon to produce many war machines and supplies not only for our own defense needs but also for Great Britain's needs. The volume of such business is, of course, highly uncertain. The total value of our exports to all countries amounted to 3.9 billion dollars during the first year of the war as compared with an average of 2.9 billion dollars for the two preceding years. Most, if not all, of this increase must be attributed to war goods, and their volume is still on the increase. During the coming year, and as long as the war continues, such exports are likely to total at least 2 billion dollars yearly. Altogether, then, the war demands are likely to call for a production of 13 billion dollars' worth of goods yearly as compared with 1 billion dollars' worth in recent years, a yearly increase of 12 billion dollars in terms of present price levels.

In the three years 1937 to 1939 inclusive, the national income—that is the value of the goods and services produced in the United States—has averaged slightly over 68 billion dollars. Our production of goods and services would have been about 20 percent higher if we had been operating at capacity levels. Aside from the danger of "bottle necks" in production, then, can we not easily increase our production of war goods by 12 billion dollars? Can we not maintain the production of other goods, produce 12 billion dollars more of war goods per year and still have a slack of unemployed resources which will prevent inflation?

¹This statement was written before the draft legislation had passed.

Superficially, it would seem that the United States could easily produce the needed war goods and still have ample unused capacity. But the answer is not so simple. Under our economic system, the people who produce goods and services receive as income an aggregate amount equal to the value of those goods and services. Out of that income they pay taxes, buy things for current consumption, and perhaps, save. The income of these people will increase as much as their production; and unless taxes and savings increase *as much* as does the amount of production, they will spend more for consumption goods. With more money spent for consumption, more goods will need to be produced, production will be increased still further and so on. The pyramiding of purchasing power, which results if government expenditures increase more rapidly than do taxes plus the net lending of individuals to the government, may result in rising prices as well as in increasing production. Moderately rising prices, especially for agricultural products, are likely to accompany increasing industrial production. This does not constitute inflation, but once capacity production is reached, if not before, the upward spiral of production changes to an upward spiral of prices, and inflation is underway.

The effects of the large appropriations by Congress for defense purposes are only beginning to show up in the most recently compiled indexes of industrial production. The Federal Reserve Board Index rose from a level of 109.5 percent of the 1936-38 average in April to 123.4 percent of this same average in September (Fig. 1). Further advances in industrial production are apparently underway in October. Bank loans advanced sharply in September and are at levels which are almost as high as were those of early 1938. The price level of commodities at wholesale has shown very little rise. The last monthly figure available is the one for September, when the Bureau of Labor Statistics wholesale index stood at 95 percent of the 3-year average, 1936-38. Weekly indexes have shown a slight advance since then; and when monthly figures are available for October, they will probably be somewhat higher than the September index.

Present prospects are that, within a few months, industrial production will reach the limit of the practical capacity of our existing equipment and methods of organizing production. With exports at a high level and a huge domestic armament program underway, we shall then be in a situation quite similar to that which prevailed in early 1916. United States industry will be attempting to fulfill the large demands for war goods in addition to the demands for goods from individual consumers.

To prevent inflation, taxation and savings of individuals in the United States must be increased by approximately the same amount as are the expenditures for war goods. There may, of course, be some reduction in government expenditures for other purposes. Larger taxes have already been levied. The rates may be increased. Individuals may be encouraged to save for the purchase of government bonds or other securities. Of course, price fixing by the government may play an important part in checking inflation. But, if taxation and voluntary savings do not increase rapidly enough to offset the increased expenditures for war goods, some system of rationing or some other method which would involve enforced savings would be necessary in order to enforce price fixing.

In Great Britain, where measures were undertaken to check rising prices almost at the outset of the war, prices have shown a marked rise, nevertheless. The wholesale price index of the British Board of Trade rose from 98 in July, 1939, to 140 in August, 1940, a rise of over 40 percent. This rise was more rapid than the one that occurred in the corresponding months of 1914 and 1915. England's experience, consequently, suggests that we should not be overconfident as to our ability to avoid inflation if military expenditures demand a major part of our productive efforts.

One of the primary factors involved in the rise of prices in Great Britain has

been the decline in the foreign exchange value of its currency. There seems little likelihood that any general decline in the value of the United States dollar will occur and thereby contribute to inflation in this country. The United States has a favorable balance of trade—we export more goods than we import, and, furthermore, we have a very large share of the world's monetary gold stocks. Both of these factors are favorable to the maintenance of the value of the dollar, and the withdrawal of foreign balances in case we do become a belligerent could probably no more than temporarily affect the foreign exchange value of the dollar. Any general rise of prices in the United States comparable to that which occurred from 1916 to 1918 would probably involve a similar rise of prices in terms of gold in many countries.

If inflation develops in the United States, it is likely to differ considerably from that of 1916 to 1918. Agricultural products of which we have an export surplus may be less affected in this World War than in the World War of 1914-18, and, as a result, the prices of agricultural products may rise less than will prices of nonagricultural products.

E. J. WORKING

OUTLOOK FOR FEED GRAINS AND SOYBEANS

Corn. The government loan is now the dominant factor in the price of corn. As was predicted at various grain and livestock outlook meetings which were held in Illinois in the fall of 1939, the Illinois farm price of corn has increased to a level equal to or above the loan price. This rise occurred during the month of April, 1940; since then, the price of corn has been quite stable, around 65 cents at Chicago for No. 2 yellow corn. At this level, commercial users were able to satisfy their demands for corn, and enough producers were willing to sell to prevent the price from advancing above it. Although the current bids on new crop corn and the price of futures are below this level, the price of new crop corn will probably not be below this level of April to September, 1940, for long. How long this period will continue will depend on the time required to absorb the various supplies of "free" corn, which are normally marketed at harvest time for various reasons, such as lack of storage space or need for immediate money. But, with the realization that about 430 million bushels of the 1938 and 1939 corn crops are under seal or are held by the government and that the 1940 crop is shorter than it has been for the last three years and with the behavior of the price in the 1939-40 season fresh in the memory of many operators, supplies of "free" corn, except those that must move, are not likely to be pressed on the market. Therefore, the price should go up to the loan level earlier in 1940-41 than in 1939-40.

This loan level will be somewhat higher in 1940-41 than in 1939-40 for two reasons: first, the loan price will probably be higher—the size of the 1940 crop and the current position of parity suggest a loan of about 61 cents on 1940 corn; second, the shorter crop in the eastern corn-belt states may make it necessary to draw corn from Iowa during the coming season. Since the corn loan is the same within the corn belt regardless of location, a market price in Iowa high enough to draw corn out of the loan for shipment east would establish a price somewhat above the loan price in Illinois because of the lower freight charges on Illinois corn to central markets in the eastern corn belt.

In addition to the loan, the following facts are of significance in relation to the corn situation:

(1) The 1940 corn crop is estimated at about 2,350 million bushels. Adding a carryover of 650-700 million bushels to this estimate, we find that the total supply is 3,000-3,050 million bushels. This amount compares with about 3,200 million bushels in 1939.

(2) The current supply exceeds our probable consumption in the 1940-41 season by 450-550 million bushels, and so no general shortage will occur. How-

ever, the total supply includes approximately 430 million bushels which are estimated to be in the hands of the government or held by farmers under government loans. Even though the higher market price and the shorter crop—particularly in the eastern part of the corn belt—may substantially reduce the quantity of sealed 1940 corn in comparison with that of 1939 corn, supplies of “free” corn will obviously be very short before the end of the season.

(3) The total supply of feed grains, including carryover, is now estimated at over 115 million tons, about the same as it was in 1939-40; but consumption is expected to be less, due to a reduction of 3 to 4 percent in grain-consuming animal units, the reduction being chiefly in hogs. The supply is equivalent to about .87 ton per animal unit, or about the average of the last two years. However, the supply per animal unit is smaller when adjustments are made for loan corn.

(4) Commercial uses may expand moderately during the year, but these uses never take a significant part of the crop. The total quantity used for feed will be less because of fewer hogs and possibly because of less cattle feeding. A considerable movement of corn into the eastern corn belt is likely because of poor crops there, but the movement into the south will be smaller because of better crops and reduced numbers of hogs.

(5) The international situation tends to weaken the price of corn along with the prices of other cereals. Since the British blockade has closed the greater part of the continent of Europe to oversea trade, the amount of international trade in grain has been seriously reduced, and this reduction has a price-depressing effect on the markets for grains in all of the exporting countries.

All these factors taken together confirm the point made at the beginning of this article: The government loan is now of dominant importance in the current corn market.

Oats. The price of oats is typically related to the price of corn. The loan on corn tends to strengthen the price of oats because it stimulates the use of the latter crop as feed. The crop of oats was large: The supply is indicated to be about 1,365 million bushels as compared with 1,131 million bushels last year. The relatively low price has stimulated heavy feeding, and considerable movement is taking place within Illinois and between Illinois and adjoining states in order to balance local supplies. The rather large crop and its slow movement to market suggests that supplies for market will be available during the year in such quantities as to prevent any considerable rise in the price of oats in relation to other grains.

Soybeans. In spite of a larger acreage, soybean yields per acre are disappointing, and the total crop is lower this year than last. The October 1 estimate of the Crop Reporting Board is 81.5 million bushels as compared with an estimate of about 87 million bushels in 1939. The 1939 crop was probably underestimated, and so the actual decrease is more than these figures indicate. However, about 11 million bushels of the 1939-40 crop were exported, and so the supply available for milling in this country may be larger this year than last year.

But the really significant point is not the supply of soybeans but the low prices at which the principal products of beans are selling. On October 10 the base price of soybean meal for prompt shipment at Chicago was quoted at \$24.20 per ton and 50 cents per ton less for shipment after November 1. Soybean oil is worth $3\frac{3}{4}$ cents per pound at midwest mills. The combined value of 48 pounds of meal and 9 pounds of oil at these prices is 92 cents, or about 14 cents over the current price of beans at Chicago. During the last three years, this difference has averaged close to 25 cents per bushel, and so we may conclude that soybeans are priced fairly high in relation to the current prices of its products. The trend in the prices of soybeans depends primarily on the trends in the prices of soybean meal and soybean oil. Prices have increased since October 10.

Currently, soybean meal is low in price in relation to corn, and in midwestern markets it is rather low in comparison with other oil meal feeds. However, at other points, the situation is different. The prices per ton, bagged, on October 8 were reported by the Agricultural Marketing Service as follows:

	<i>Chicago</i>	<i>Buffalo</i>	<i>St. Louis</i>	<i>Memphis</i>
Soybean meal (41% protein).....	\$24.70	\$27.50	\$26.50	.....
Cottonseed meal (41% protein).....	29.00	30.50	26.00	\$23.00
Linseed meal (37% protein).....	27.40	25.00	29.30	.....

The low price of linseed meal at Buffalo reflects the milling of imported flaxseed at that point and the inability to follow the usual practice of re-exporting the meal due to the international conditions described above.

The total supply of oilseed feeds is likely to be somewhat larger this year than last year because of larger domestic crops of cottonseed and flaxseed and possibly because of larger crushings of soybeans, where the absence of exports of soybeans will offset the smaller crop. Crushings of cottonseed will be about 250,000 tons larger in 1940-41 than in 1939-40, and production of flaxseed will be about 10 million bushels larger this year than last year. The estimated crop of 30.7 million bushels is about equal to last year's total crushings, and so imports may be smaller. However, building and business activity will increase the demand for linseed oil and will thus make some imports necessary. So the total supply of linseed oil meal is likely to be larger.

In view of the larger supplies, the chief possibility for an improved price for soybean meal is heavy consumption of it stimulated by the low price of soybean meal in relation to corn and other protein feeds. Such heavy consumption would alter the balance between supplies of soybean meal and other feeds and would cause its price to strengthen. However, we are faced with the necessity of annually using about a million more tons of these high-protein feeds than we used before 1934.

The oil and fat markets are pretty well clogged with heavy supplies, particularly in the edible oil and soap sections. The increased production of hogs and the lack of an active export market for lard have forced an increase of about 600 million pounds in the annual consumption of that fat during the past two years. Consequently, lard has displaced other fats which had filled the gap caused by its shortage from 1935 to 1937. The production of domestic vegetable oils has increased—particularly that of soybean oil, of which the 1939 consumption amounted to about 6 percent of the total of 21 fats and oils with which it competes more or less in various uses. The situation is summarized by the price quotations of 4½ cents per pound for crude cottonseed oil at Mississippi-valley mills and of around 5 cents per pound for prime steam lard at Chicago. Soybean oil, which is a newcomer in the field and which has few, if any, technical advantages in its principal uses, has to compete on a price basis.

However, the following factors might contribute to some advances in the prices of oils and fats: (1) improved business activity, which will expand the demand for them; (2) a reduction of 10 percent in prospective hog supplies for 1940-41; (3) smaller stocks of cottonseed oil, which will offset increased crushings; (4) a price level so low as to discourage imports of oil except for oils that are technically necessary. Moderate increases in prices over the course of the next year are probable.

The question that farmers raise about soybeans is: Will the price go up sufficiently to make storage profitable? Typically, soybean prices have risen between harvest and the following summer. The prospects are not great for more than a moderate increase in 1940-41 unless there is a sharp rise in the general price level.

L. J. NORTON

THE SHEEP CYCLE

Changes in the price of sheep are the result of changes in the factors causing two general types of price movements: (1) those which are common to commodity prices in general, usually designated as changes in the buying power of money and (2) those in the supply of and the demand for sheep.

Changes in the Purchasing Power of Sheep. Changes in the value of money can be eliminated from the price of sheep by expressing the price in terms of the purchasing or the buying power; that is, the price of sheep divided by an index that measures the changes in the general price level. This is a measure of the price of sheep relative to the prices of all commodities at wholesale. In Figure 1, both the price and the purchasing power of sheep are given; the fluctuations in the solid line are the result of changes in the supply of and demand for sheep.

Before the first World War, the purchasing power of sheep fluctuated in fairly regular cycles of about 7 to 8 years from peak to peak (Fig. 1). From 1885 to 1912, three complete price cycles occurred. Peaks were reached in 1892, 1899, and 1908. Since the World War, these cycles have been rather erratic and the ups and downs have been more pronounced than they were formerly. Peaks were reached in 1918 and 1929. The fluctuations or cycles in the purchasing power of sheep have been much less regular than have been those in the purchasing power of beef cattle (see the April issue of *Illinois Farm Economics*). Nevertheless, the cycle of the purchasing power of sheep is of some value in forecasting the future supplies of sheep because changes in the profitableness of

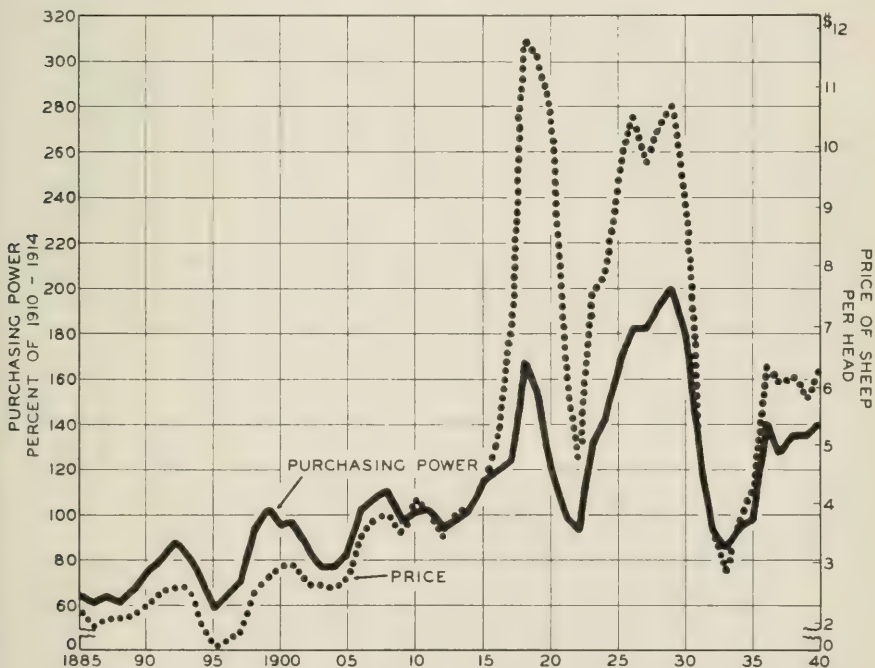


FIG. 1.—PURCHASING POWER AND PRICES OF SHEEP PER HEAD, U. S., 1885-1940
(1910-1914 = 100)

The price of sheep has fluctuated more violently than has the purchasing or the buying power of sheep. During the last war, the United States farm price of sheep rose from a yearly average price of \$5.10 per head in 1916 to \$11.76 per head in 1918 and then fell to \$4.79 per head in 1922.

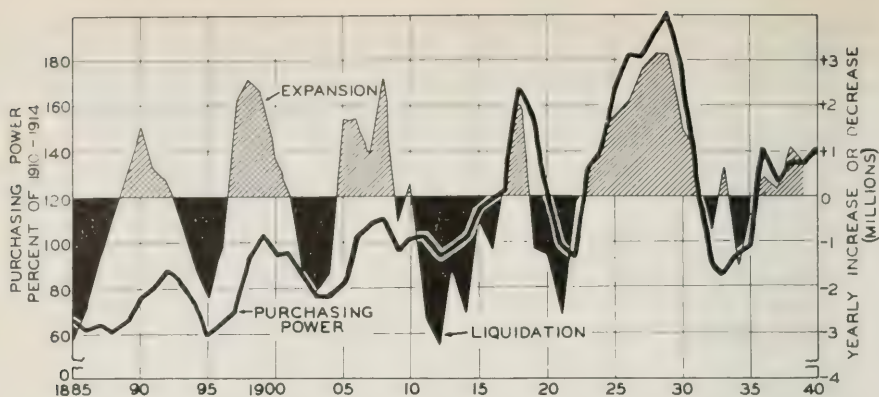


FIG. 2.—PURCHASING POWER OF SHEEP PER HEAD AND YEARLY CHANGES IN SHEEP NUMBERS, U. S., 1885-1940 (1910-1914 = 100)

The rate of expansion or contraction of sheep numbers has been associated with changes in the purchasing power of sheep. Rising purchasing power brings an increase in numbers; falling purchasing power brings a decrease in numbers.

sheep production and the resulting tendencies to expand or contract sheep production are associated with changes in the price of sheep relative to costs.

On January 1, 1940, the purchasing power of sheep was higher than it had been at any time since 1930. This high purchasing power reflected a good demand for meats and wool. The price of sheep was strengthened last fall because the price of wool rose sharply at the outbreak of the war. The purchasing power of sheep is higher now than it has been at any time since 1930, but it is still below the peaks of 1918 and 1929. Although the numbers of sheep are slowly increasing, the cycle of the purchasing power of sheep will probably not turn downward as long as the good demand for meats and wool continues. The duration of this period of high prices will depend upon the length of the war and the armament boom.

Changes in the Numbers of Sheep. The numbers of sheep have increased during periods of rising purchasing power and have decreased during periods of falling purchasing power (Fig. 2). The longest period of expansion since 1885

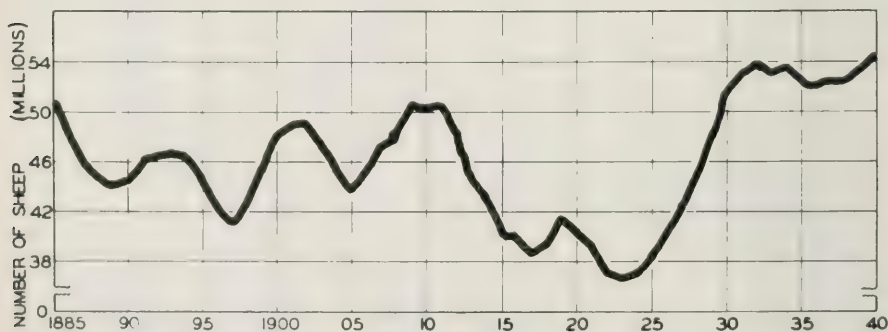


FIG. 3.—STOCK AND FEEDER SHEEP AND LAMBS ON FARMS IN THE UNITED STATES, 1885-1940

On January 1, 1940, there were 54,473,000 sheep on farms and ranches in the United States. This was the largest number in the history of the country.

took place during the 9 years from 1923 to 1931; the longest period of liquidation took place during the 6 years from 1911 to 1916. Usually a lag of a year or two occurred before the rise in the purchasing power led to an increase in numbers. A similar lag occurred before the decline in the purchasing power led to a decrease in numbers. The purchasing power began to increase between January 1, 1933 and 1934, but the numbers did not increase until 1936. Because a lag may be expected to occur and because the purchasing power will probably be steady or increasing for a while, the numbers of sheep will probably continue to increase for the next few years. The increased production of roughage in Illinois and other midwestern states is also a further stimulus to sheep production.

The total numbers of sheep and lambs on farms and ranches in the United States on January 1 of each year are given in Figure 3. The numbers have fluctuated from a low of 36,803,000 on January 1, 1923, to a high of 54,473,000 on January 1, 1940. The 1940 figure is the largest in the history of the country.

E. M. HUGHES

SOME EFFECTS OF MECHANIZATION ON AMOUNTS AND COSTS OF FARM LABOR

A great deal has been said recently about the reduction of labor requirements on farms because of mechanization. The extent of such a reduction, however, applies very differently on farms of various types and sizes. On most farms the labor of the operator and his family is paid by the general income of the farm rather than by a cash wage. To a considerable extent, the purpose in reducing labor demands is to reduce the cash outlay for wages of hired labor, although that reduction may also shorten the hours and lessen the burden of the work of the operator and his family. Since the noncash labor is already available, the question in the minds of many farmers is how much hired labor is necessary.

The distribution of expenses in 1939 for labor furnished by the operator, family, and hired labor on accounting farms in the farming-type areas in Illinois is given in Table 1. The operator's labor was calculated at \$50 a month in the first five groups and at \$40 a month in the last four groups. In all nine areas, the operators spent from 84 to 92 percent of their time on the farm. The value of family labor was estimated on the basis of the hired labor displaced and averaged from 3 to 6 months per farm; the value of hired labor was calculated on the basis of the cash outlay for wages and the estimated value of the food products furnished this labor. For each of these areas, the accounting farms averaged larger than all farms in the area because of the absence of very small units and the smaller proportion of units of less than average size. On a per farm basis the total labor expense was highest in the Chicago Dairy Area and lowest in the southern Illinois areas. The total labor expense represented a

TABLE 1.—DISTRIBUTION OF LABOR EXPENSES BY KINDS OF LABOR
IN THE VARIOUS TYPE-OF-FARMING AREAS IN ILLINOIS^a

Type-of-farming area	Value of labor furnished by			Total labor expense	Cost per \$100 gross earnings	Size of farms	Number of farms
	Operator	Family	Hired labor				
Dairy.....	\$516	\$224	\$490	\$1 230	\$27	171	87
Mixed livestock.....	554	178	362	1 094	20	209	454
Livestock and grain.....	519	162	510	1 191	18	249	511
Cash grain.....	531	164	432	1 127	18	268	559
General farming.....	524	245	379	1 148	22	261	315
Dairy and wheat.....	430	258	229	917	26	202	271
Fixed farming.....	426	228	160	814	30	227	103
Grain and livestock.....	421	137	172	730	24	218	63
Fruit and vegetables.....	402	120	411	933	38	186	56

^aTables compiled from *Summary of Farm Business Reports, 1939*, by P. E. Johnston, J. B. Cunningham, and I. L. Mosher.

TABLE 2.—DIFFERENCES IN LABOR REQUIREMENTS OF ILLINOIS FARMS
WITH VARIOUS SOURCES OF INCOME

Source of income	Months of labor per 100 acres	Months of total labor	Acres per farm	Number of farms
Grain, 40 percent or more.....	7.86	20.9	266	634
Dairy sales, 40 percent or more.....	14.62	25.0	171	62
Hogs, 40 percent or more.....	9.59	21.2	221	236
Cattle, 40 percent or more.....	8.49	28.1	331	189
General farms, livestock under 60 percent.....	9.13	21.1	231	382
General farms, livestock over 60 percent.....	9.48	23.5	248	334

TABLE 3.—RELATION OF SIZE OF FARM TO LABOR REQUIREMENTS IN ILLINOIS

Acres in farm	Number of workers ^a	Total months of labor	Labor cost per \$100 gross earnings	Size of farms	Number of farms
41-120.....	1.22	14.6	\$27	101	204
121-200.....	1.50	18.0	22	167	643
201-280.....	1.81	21.7	19	242	464
281-360.....	2.10	25.2	17	319	276
361-440.....	2.50	30.0	19	397	113
441 or more.....	3.12	37.4	16	580	139

^a12 months' basis.

larger proportion of the gross farm earnings in these areas than in the central part of the state—in the Chicago Dairy Area, because the labor requirements in dairy farming were high; in the southern Illinois areas, because the farm earnings were low.

The effect of the system of farming upon labor requirements is more accurately shown when the records of farms in central and northern Illinois are classified on an income basis (Table 2). The months of labor used per 100 acres of farm land were highest on the dairy farms, were lowest on the grain farms, and differed only moderately on farms with considerable livestock other than dairy cattle. Even wider differences would appear if the total months of labor required were only applied to the cropland. This method, however, would give a marked advantage to the grain farms since their proportion of acreage in crops was much higher (63 percent as compared with 42 percent for dairy farms and with 49 to 54 percent for each of the other groups) and since the amounts of livestock were much lower.

Another influence in this labor advantage on grain farms arises from the fact that labor-saving equipment has been applied more generally to operations in grain production than to those in livestock production.

Labor requirements are also influenced by the size of farm (Table 3). Thus when the farms listed in Table 2 are regrouped on the basis of acreage and when the months of labor are converted into the number of workers required, the size of farm increases much faster than does the number of workers or months of labor. This fact is the result of two tendencies: (1) the smaller farm units are less fully equipped with labor-saving equipment than are the larger ones and (2) the smaller farm units also have a more intensive organization, especially larger numbers of livestock in relation to the acreage.

Based upon these data and a recent survey of farm managers, most farms in Illinois may be classified into the five following groups from the standpoint of labor organization:

1. Smaller family-sized farms, handled by an operator and his family, with little or no hired labor.
2. Larger family-sized farms, employing one or two regular farm laborers.

3. Large commercial farms, employing three to six men, the manager devoting a great deal of his time to directing the work.

4. Farms operated entirely by hired laborers.

5. Farms producing crops on which labor requirements at certain seasons exceed local supplies and migratory workers are used.

On farms of the first group, the problem is largely one of utilizing the available labor; but on those of the second group, another objective enters—that of making efficient use of the hired labor. These two groups make up the majority of Illinois farms. On farms of the third and fourth groups, the second objective is dominant; these groups, however, include relatively few farms. The last group is much less important in Illinois than in many western states; migratory labor is used in fruit areas and, before the advent of mechanical corn pickers, was used a great deal in harvesting the corn crop. In any of these groups, some day labor may also be used for short periods.

The increasing use of labor-saving equipment is raising the qualifications desired in farm laborers. From the viewpoint of the laborer, the increased skill that is required calls for steady employment; from the viewpoint of the employer, the reduction in labor demands makes the position of the worker more seasonal. Therein lies the paradox of insufficient work on the one hand and insufficient labor supply on the other. The problem is more acute with respect to seasonal requirements than to regular requirements.

The present trend toward more forage crops and more livestock should lessen somewhat the seasonal character of the farm-labor problem, because these practices reduce the total labor requirement of peak periods and increase the year-round requirements for livestock operations. The present increase in industrial activity in connection with the defense program and the withdrawal of manpower for military training may be expected to further reduce the availability of seasonal labor supplies.

R. C. Ross

Footnotes for the following page:

¹⁻¹²The first source is for annual data; the second is for current data from which tables may be brought to date.

¹Survey of Current Business, 1936 supplement, U.S. Dept. of Commerce; subsequent monthly issues. ²Same as footnote 1. ³Illinois Crop and Livestock Statistics, Circular 438 (1937); monthly mimeographs of Statistical Tables for Illinois Crop Report, converted from 1910-14 = 100 to 1924-29 = 100 by multiplying by .7151. ⁴Agricultural Situation, Bureau of Agricultural Economics, U.S.D.A.; Agricultural Situation, converted from 1910-14 = 100 to 1924-29 = 100 by multiplying by .6486. ⁵Calculated from data furnished by Bureau of Agricultural Economics; Survey of Current Business, seasonally adjusted. ⁶Calculated by Department of Agricultural Economics, University of Illinois, seasonally adjusted. Data from Farm Income, Bureau of Agricultural Economics; B.A.E. monthly mimeograph. Receipts from Sale of Principal Farm Products (government payments not included). ⁷Obtained by dividing Index of Illinois Farm Income (column 6) by Index of Prices Paid by Farmers (column 4). ⁸Monthly Indexes of Non-Agricultural and National Income, Supplement, August, 1937, B.A.E.; Price and Demand Situation, or Agricultural Situation. ⁹Survey of Current Business, 1938 Revision; subsequent monthly issues, unadjusted for seasonal variation. ¹⁰Federal Reserve Bulletin of Federal Reserve Board, September, 1933 and subsequent issues; Survey of Current Business, seasonally adjusted. ¹¹Preliminary estimate. ¹²Illinois Crop and Livestock Statistics, Cir. 438; Monthly price releases, State Agricultural Statistician.

TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural income ⁸	Factory payrolls ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. In money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period.....	1926	1926	1924-29	1924-29	1924-29	1924-29	1924-29	1924-29	1923-25	1923-25
1929.....	95	105	104	99	103	103	104	107	110	119
1930.....	86	88	89	94	83	87	93	100	89	96
1931.....	73	65	62	80	58	58	72	87	68	81
1932.....	65	48	41	69	43	43	62	68	47	64
1933.....	66	51	45	71	49	51	72	63	50	76
1934.....	75	65	61	80	57	55	69	72	64	79
1935.....	80	79	82	81	64	65	80	77	74	90
1936.....	81	81	86	80	74	82	103	90	86	105
1937.....	86	86	96	84	80	87	103	95	102	110
1938.....	79	69	69	80	72	81	101	88	78	86
1939.....	77	65	65	78	72	81	97	93	91	105
1939 Sept.....	79	69	71	79	74	78	98	93	94	111
Oct.....	79	67	67	79	76	101	127	95	102	121
Nov.....	79	67	67	79	76	93	117	96	102	124
Dec.....	79	68	66	79	79	99	125	97	104	128
1940 Jan.....	79	69	68	79	79	100	126	97	98	119
Feb.....	79	68	67	79	83	100	126	96	98	109
Mar.....	78	68	66	79	76	98	124	96	98	104
Apr.....	79	69	67	80	82	76	96	95	96	102
May.....	78	68	69	80	80	90	112	96	96	106
June.....	78	66	65	80	70	71	89	97	98	114
July.....	78	66	67	79	71	72	90	98	96	116 ¹¹
Aug.....	77	66	69	79	70 ¹¹	80	101	99 ¹¹	104	118 ¹¹
Sept.....	78 ¹¹	66 ¹¹	72	79	...	...	...	...	...	...

TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS¹²

Product	Calendar year average			September 1939	Current months		
	1924-29	1938	1939		July	August	September
Corn, bu.....	\$.81	\$.45	\$.43	\$.51	\$.59	\$.60	\$.59
Oats, bu.....	.42	.24	.28	.31	.26	.26	.27
Wheat, bu.....	1.30	.68	.67	.75	.66	.66	.69
Barley, bu.....	.66	.53	.41	.43	.42	.44	.45
Soybeans, bu.....	1.94	.75	.74	.70	.70	.63	.67
Hogs, cwt.....	9.97	8.06	6.56	7.40	6.00	6.10	6.40
Beef cattle, cwt.....	8.57	7.68	8.18	8.60	8.60	9.10	9.60
Lambs, cwt.....	12.22	7.76	8.18	8.40	8.80	8.40	8.20
Milk cows, head.....	78.00	60.00	63.00	61.00	66.00	66.00	64.00
Veal calves, cwt.....	11.27	8.89	9.15	9.50	9.00	9.30	9.80
Sheep, cwt.....	6.52	3.36	3.44	3.40	3.05	3.10	3.35
Butterfat, lb.....	.42	.25	.23	.23	.25	.25	.25
Milk, cwt.....	2.32	1.66	1.59	1.70	1.60	1.65	1.70
Eggs, doz.....	.30	.19	.16	.16	.13	.13	.17
Chickens, lb.....	.21	.15	.13	.13	.14	.13	.14
Wool, lb.....	.36	.21	.25	.29	.30	.28	.29
Apples, bu.....	1.59	.95	1.07	.70	1.05	1.05	1.00
Hay, ton.....	13.38	7.65	6.05	6.00	5.20	6.30	6.80
Potatoes, bu.....	1.39	.73	.80	.85	.80	.75	.75

1-12For sources of data in tables see previous page.

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G. L. Jordan, Editor

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Number 66

INCREASING MILK CONSUMPTION BY LOWERING DISTRIBUTION COSTS

Dairymen in the United States are now faced with substantial increases in production while market milk consumption is far below that recommended by dieticians as being necessary for maintaining health. In 1939 total milk production averaged 17 percent higher than that for 1924-29 compared with a two percent increase in the production of farm products other than milk (Fig. 1). Food specialists recommend the use of 260 quarts of milk (1.42 pints daily) or its

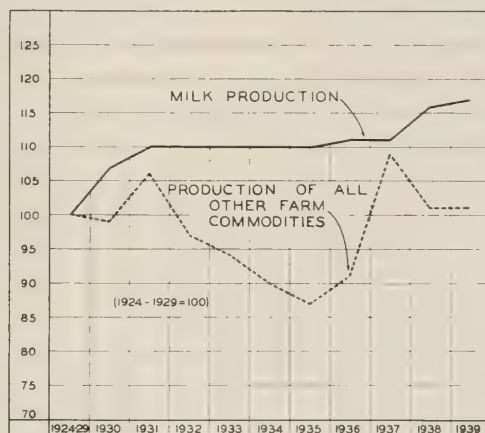


FIG. 1. CHANGES IN TOTAL MILK PRODUCTION AND AGRICULTURAL PRODUCTION OTHER THAN MILK, UNITED STATES, 1924 TO 1939^a

In 1939, milk production in the United States was 17 percent higher than that of 1924-29. This compared with a 2-percent increase in production of farm products other than milk.

equivalent a year for the most economical diet, and 305 quarts (1.67 pints daily) for a diet without cost restrictions. A nation-wide study of milk consumption showed that average diets included from one-half to two-thirds as much milk as diets graded good and that even these good diets fell short of the amount of milk believed necessary by many nutritionists.¹

With these facts in mind, the question arises: In what ways can consumption of market milk be increased to help absorb the increasing quantities of production and at the same time give consumers a more adequate diet?

Studies made at the University of Illinois have indicated that the decline in consumers' incomes combined with relatively high retail prices have been the principal causes for lower sales of market milk since 1930. Since the market milk industry has little or no control over consumers' incomes in general, its greatest

^aFrom United States Department of Agriculture.

¹Stiebeling and Phipard. Diets of Families of Employed Wage Earners and Clerical Workers in Cities. S.D.A. Circular 507, 1939. p. 101.

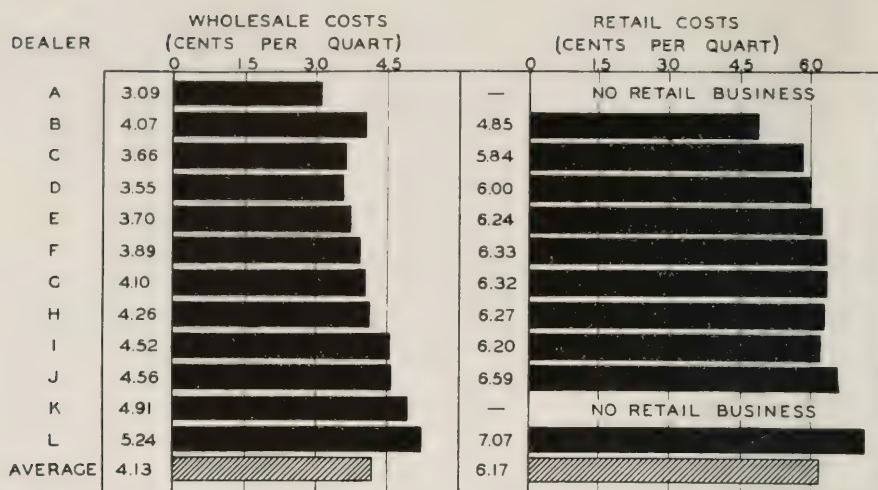


FIG. 2. WHOLESALE AND HOME-DELIVERY COSTS FOR DISTRIBUTING MILK BY 12 DEALERS IN MARKET X, CALIFORNIA, APRIL-JUNE, 1937^a

Some dealers are far more efficient than others. Dealer A had wholesale costs of 3.09 cents per quart compared with 5.24 cents for Dealer L. Retail costs for Dealer L were over 2 cents per quart higher than those for Dealer B.

opportunity for increasing sales depends largely upon selling milk to consumers at lower prices.¹

Two important elements in the retail price of milk are (1) dealers' margins (costs and profits), and (2) price paid farmers. Can either be reduced?

A study of the blend or average prices paid producers in 8 major cities for the ten-year period, 1929 to 1938, indicates that the amount which the blend price to producers could conceivably be lowered for these markets as a group is, under present condition of production efficiency, a question of a fraction of a cent a quart.² Dealers usually agree that what producers receive at condenseries constitutes a rock-bottom price for milk and also that in most markets some premium above the condensery price is absolutely essential to encourage farmers to meet quality requirements and to supply their needs for milk during shortage periods. For the 8 markets studied, the difference between the blend price (4 cents) and condensery price (3.09 cents) averaged only .91 cent per quart for the ten-year period.

Further analysis indicates that the greatest opportunity for increasing milk consumption lies in lowering distribution costs.

Distribution Costs Vary: Store Distribution More Economical Than Wagon Distribution. Many studies have been published showing the wide range in production efficiency for different farmers. For example, a study of seventy-nine dairy farms in Pennsylvania showed that the cost of producing milk varied among the farms from \$1.16 to \$3.40 per hundredweight of milk.³

In contrast, most studies of distribution have been based upon the average costs of several distributors rather than showing the range in distribution eff

^aSee Table 1.

¹Bartlett, R. W. Increasing the Efficiency of Milk Distribution, University of Illinois, Dept. of Agr. Econ., Mimeo. Report AE-693; Some Consumption Studies, Univ. of Ill., Dept. of Agr. Econ., Mimeo. Report AE-1265; Increasing Milk Consumption Through the Use of Quantity Discounts, Illinois Farm Economics, March, 1940, p. 329.

²American Cooperation, 1939, p. 261.

³Pennsylvania Farm Economics, No. 4, November, 1939, p. 1.

TABLE 1.—WHOLESALE AND HOME DELIVERY COSTS FOR DISTRIBUTING MILK BY 12 DEALERS
IN MARKET X, CALIFORNIA, APRIL, MAY, AND JUNE, 1937^a
(cents per quart)

Distributor	Processing	Selling and delivery		Advertising		Administrative and general		Total	
		Wholesale	Retail	Wholesale	Retail	Wholesale	Retail	Wholesale	Retail
A.....	1.00	1.62	.....	.05	...	.42	...	3.09	.....
B.....	1.10	2.54	3.10	.03	.04	.40	.61	4.07	4.85
C.....	1.14	2.04	3.96	.07	.11	.41	.63	3.66	5.84
D.....	1.05	2.19	4.06	.04	.07	.27	.82	3.55	6.00
E.....	1.14	2.08	4.36	.06	.08	.41	.66	3.70	6.24
F.....	1.32	2.01	4.20	.04	.06	.51	.75	3.89	6.33
G.....	1.33	2.32	4.42	.07	.10	.38	.46	4.10	6.32
H.....	1.44	2.46	4.38	.03	.03	.33	.42	4.26	6.27
I.....	1.21	2.62	4.04	.09	.13	.60	.72	4.52	6.20
J.....	1.34	2.59	4.48	.08	.10	.55	.68	4.56	6.59
K.....	1.64	2.73	.....	.06	.....	.47	.....	4.91	.....
L.....	1.59	2.98	4.67	.07	.09	.60	.72	5.24	7.07
Average.	1.28	2.35	4.17	.06	.08	.45	.65	4.13	6.17

^aTinley, J. M., Public Regulation of Milk Marketing in California, 1938, pp. 125-126. Table 4.

ciency for different dealers. Hence, Tinley's study showing the variations in retail and wholesale costs of 12 dealers distributing milk in a California market has been a real contribution to the science of dairy marketing (Fig. 2 and Table 1). A review of this study indicates the following facts:

1. Wholesale costs of distribution of the 12 dealers varied from 3.1 cents to 5.2 cents per quart, a range of 2.1 cents per quart.

2. Retail costs of distribution for this same group of dealers ranged from 4.8 cents to 7.1 cents, a range of 2.3 cents per quart.

3. Retail costs of the least efficient dealer (Dealer L) averaged 4 cents per quart more than did the wholesale cost of the most efficient dealer (Dealer A).

These facts indicate: (1) that some dealers are far more efficient than others and (2) that costs of wholesale or store distribution of milk in this market are materially lower than those for home deliveries. These conclusions have been confirmed by several other studies.

Wholesale costs for a milk concern having an exclusive outlet to a group of chain stores in a large Ohio city in 1939 averaged 2.6 cents per quart. Adding 1 cent¹ for the cost of store distribution, this made a total distribution cost of 3.6 cents per quart. In this same city, the cost of distributing milk through a retail outlet to homes averaged 7.1 cents, or nearly twice as much as the cost of store distribution.

TABLE 2.—MILK DISTRIBUTION COSTS ON WHOLESALE ROUTES IN GLASS BOTTLES
AND PAPER BOTTLES, NEW YORK CITY
(cents per quart)

Milk-dealers' costs	Wholesale routes	
	Glass bottles July, 1935 ^a	Paper bottles ^b Jan.-Mar., 1936
City plant.....	1.20	.614
Containers.....	.10	1.347
Selling, delivery, collections.....	2.40	1.625
General and administrative.....	.15	.254 ^c
Total cost.....	3.85	3.240

^aFrom American Cooperation, 1935, p. 495.

^bData as presented at a hearing before the New York State Milk Control Board, May, 1936, by the Dairy Sealed, Inc., a subsidiary of the Borden Company. By 1939, this cost was reported to have been reduced one-half cent per quart below that reported for 1936. (See footnote, f, page 424.)

^cThis includes the billing and collection expense amounting to .05 cent per quart.

¹Based upon the estimated cost for this service made by an official of this company.

CITY	YEAR	TYPE OF CONTAINER	CENTS PER QUART				
			0	10	20	30	40
PHILADELPHIA ^a	1939	GLASS	4.90				
MARKET X, CAL ^b	1937	NOT STATED	4.13				
NEW YORK ^c	1935	GLASS	3.85				
CHICAGO ^d	1939	GLASS	3.26				
NEW YORK ^e	1936	PAPER	3.24				
BOSTON ^f	1935	GLASS	3.09				
NEW YORK ^g	1939	PAPER	2.64				
AN OHIO CITY ^h	1939	GLASS	2.60				
RIVERSIDE, CAL. ⁱ	1939	PAPER	2.37				
SAN BERNARDINO, CAL. ^j	1939	PAPER	2.16				

FIG. 3. WHOLESALE COSTS FOR DISTRIBUTING MILK IN EIGHT MARKETS AS REPORTED BY DIFFERENT STUDIES

Wholesale costs of a dealer in the San Bernardino area, California, averaged 2.16 cents per quart in January, 1939. This is the lowest reported cost for receiving, processing, bottling, and distributing milk to stores.

Average wholesale costs as reported for New York City in 1935 were 3.85 cents per quart for wholesale route trade to stores compared with 6.35 cents for retail route trade (Table 2).

Distributing Milk in Paper Containers. What about the paper bottle? Starting in New York City in 1929, the paper bottle was being used (1939) in the wholesale distribution of milk in 481 cities, towns, and municipalities located in 19 states and in the District of Columbia.¹ The principal cities other than New York using the single-service containers are Baltimore, Buffalo, Cleveland, Dayton, Detroit, Duluth, Indianapolis, Los Angeles, Minneapolis, Pittsburgh, Philadelphia, Seattle, San Francisco, Tampa, and Washington, D. C. In each of these places, paper containers are used with the legal approval of the local board of health.

In November, 1939, Bordens and Sheffields, the two largest distributors in New York City, initiated the use of the two-quart paper container on their retail routes at prices 1½ cents per quart lower than the quart prices in glass bottles. One official in New York has estimated that about one-third of all milk sold in this city is now (1940) being distributed in single-service containers.

The wide variation in wholesale costs of distribution is shown in Figure 3. The lowest available costs for wholesale distribution in the United States are those reported in 1939 for one dealer in the San Bernardino area in California of 2.16 cents per quart. These costs compared with a high of 4.90 cents per quart as reported in 1939 for a Philadelphia milk dealer.

Which is cheaper—store distribution of milk in paper containers or in glass containers? No exact answer can be given to this question since other cost factors are more important than type of container. Probably the most important efficiency factor is *volume per route*, which is directly associated with *volume per store*.

In the San Bernardino area where milk was distributed in paper containers, deliveries averaged 70 units per store, as compared with 3 units per store, the average for the Philadelphia dealer distributing milk in glass bottles.

^aFrom testimony presented before the Pennsylvania Milk Control Board, Philadelphia, May 1939. ^bSee Table 1. ^cSee Table 4. ^dFrom Montague, Theodore G., President of Borden Company, "Is There a Milk Monopoly," May, 1939, p. 27. ^eSee Table 3. ^fBased on letter dated September 22, 1939, from E. S. Brennan, Controller of Dairy Sealed Inc. ^gFrom information presented at a milk conference, March, 1939. ^hSee Table 3.

ⁱFrom "Brief of Facts Pertaining to Costs of Pure-Pak Single Service Containers Presented to Michigan Milk Control Board, September 25, 1939," Ex-Cell-o Corporation, Detroit, Michigan, pages 1 and 21.

TABLE 3.—COMPARISON OF ITEMIZED COSTS FOR DISTRIBUTING MILK IN PAPER CONTAINERS TO
29 SAFEWAY STORES IN THE SAN BERNARDINO AND RIVERSIDE AREAS,
CALIFORNIA, JANUARY 1-28, 1939^a
(cents per quart)

Cost items	San Bernardino	Riverside county
Paper bottles.....	.947	.947
Processing.....	.775	.775
General and administration.....	.026	.026
Advertising.....	.003	.003
Selling and delivery.....	.410	.615
Total.....	2.161	2.366

^aInformation, as reported to the Division of Markets of the Department of Agriculture, Sacramento, California, is based upon the average cost of processing a quart of milk by the Los Angeles Creamery of the Lucerne Cream and Butter Company plus the average cost of selling and delivering this milk to the respective areas.

In the Ohio city, where costs for wholesale delivery in glass bottles averaged 2.6 cents per quart, deliveries averaged 80 to 120 units daily per store, and volume per route ranged from 7,000 to 10,000 units daily.

A cost study in California showed that in Los Angeles the average volume per wholesale route ranged from 1,300 to 1,400 units daily; Oakland, 900 to 1,000 units; and in San Francisco, 800 to 900 units daily.¹ Wholesale delivery costs averaged much lower in Los Angeles than in Oakland and lower in Oakland than in San Francisco, even after full adjustments were made for differences in wage rates. No attempt was made in this study to determine differences in costs based upon types of containers.

The widespread use of the paper bottle in the distribution of milk is economically sound to the extent that it lowers distribution costs, improves service, and is accepted by consumers. In general, dealers distributing milk to stores in paper containers have been forced by competition to adopt better merchandising methods than those which had existed. This accounts, at least in part, for the fact that some dealers using paper containers have lower costs.

Some efficient methods which can be used in store distribution with either paper or glass are: (1) the use of exclusive stops—only one dealer per store and (2) elimination of most of the time spent in collections at stores, a saving made possible by centralizing purchases and sales. For example, the Safeway Stores buying milk for their stores in the San Bernardino area, clear all store accounts through their central office.

Savings made possible through use of the paper container may be summarized as follows:

1. Elimination of all costs for labor, equipment, and power necessary for handling and washing glass bottles. One study indicated that plant costs for processing and bottling milk in paper bottles were about one-half those for performing these same operations in glass bottles, or a net saving of around three-fifths of a cent a quart (Table 2).

2. Reduction in selling and delivering expenses. In San Bernardino these costs were reduced to .41 cents per quart (Table 3). One factor contributing to this was low transportation costs. Use of paper containers save about two-thirds of the space and about half the weight required for glass bottles. With the use of dry ice and insulated trucks, it is now practical to service stores within a radius of 75 miles from the main plant. Use of the single-service container also speeds up store service—in one city a route-delivery man now commonly services an average of ten stores an hour.

3. Elimination of labor costs involved in collecting a bottle deposit, and reduction in space cost for refrigerating milk in stores. Concerning the mer-

¹Tinley, J. M. Reducing Cost of Distributing Milk in California. Journal of Farm Economics, Vol. XXI, No. 1, February, 1939. p. 302.

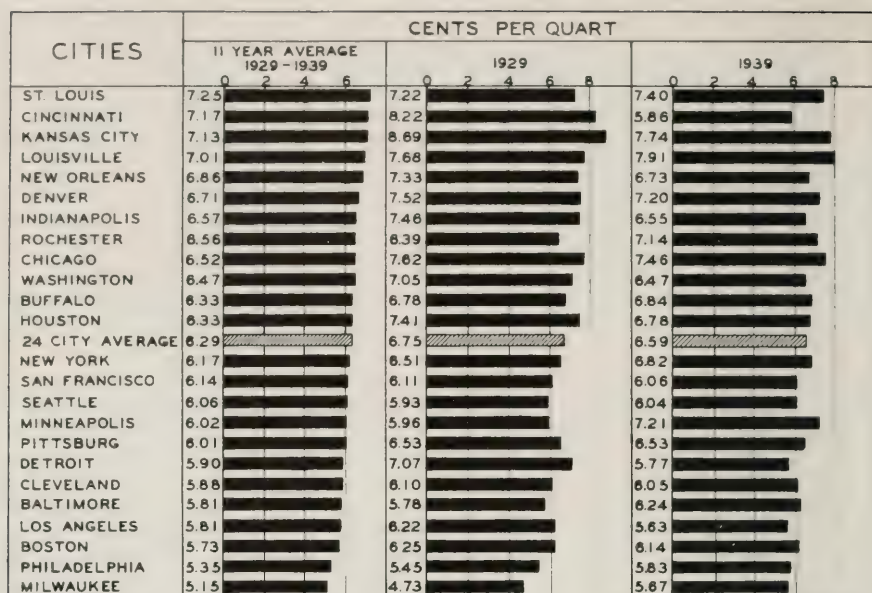


FIG. 4. HOME-DELIVERY COSTS OF DISTRIBUTING MILK TO CONSUMERS AS MEASURED BY DEALERS' GROSS HANDLING MARGINS IN 24 MARKETS, 1929 TO 1939^a

Distribution costs vary widely among different markets. Home-delivery costs from 1929-1939 for the 24 largest cities as measured by the handling margins were highest in St. Louis and lowest in Milwaukee.

chandising of milk through retail stores, a manager of a chain of around 160 stores in Chicago makes the following comments:

"Make it easier for the retailer to handle milk efficiently—eliminate bottle returns and bottle deposits—put milk in a package easy to display, easy to carry, requiring no storage space, and having no breakage. Take away the things which make milk difficult to handle and a source of irritation, and the retailer will respond with selling effort."¹

In both New York City (Table 2) and San Bernardino (Table 3), the higher cost of paper containers has been more than offset by reductions in other costs. Part of the recent reduction in costs for distributing milk in paper containers in New York City resulted from lower container costs. In San Bernardino, the cost per container is slightly less than one cent.

The use of the paper bottle makes it impossible for a customer to see the cream line. To protect consumers from receiving milk of an unknown fat content, the health department should require that the minimum fat content be clearly printed on the cap or the container of each bottle of milk sold.

Variations in Dealers' Gross Handling Margins. Distribution costs vary not only between dealers in a particular market, but also vary widely between different markets. For example, using the dealers' gross handling margin as a measure of what milk distribution costs consumers, one finds that the average margins for home deliveries of single quarts from 1929 to 1939 ranged from 5.15 cents per quart for Milwaukee to a high of 7.25 cents per quart for St. Louis

^aData from United States Department of Agriculture Fluid Milk Reports and Trade Association Reports.

¹Landing, F. J., Merchandising Manager, Jewel Food Stores of Jewel Tea Company, Chicago. Merchandising Milk Through Stores. Department of Agr. Ec., Univ. of Ill. Mimeographed report AE-1324, p. 5, 1940.

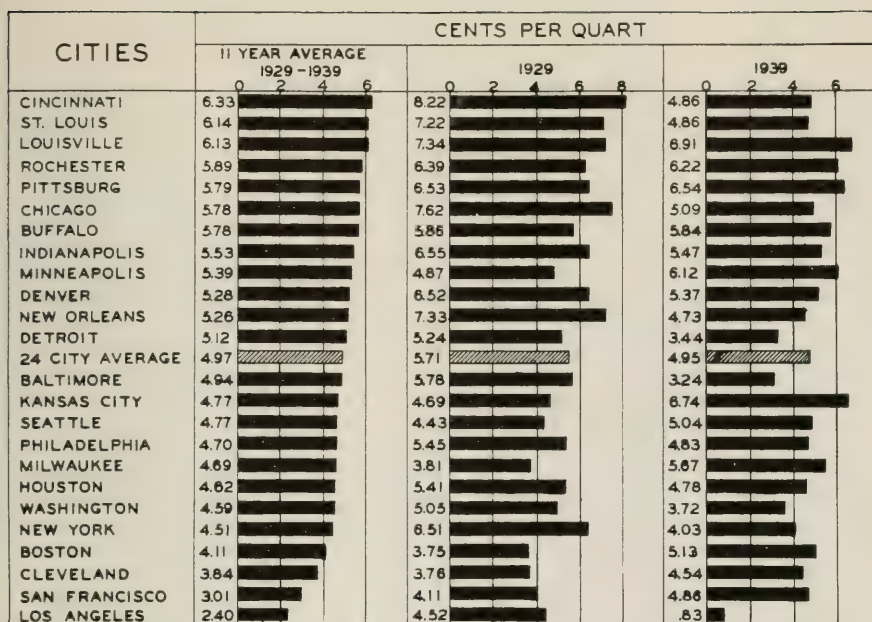


FIG. 5. WHOLESALE COSTS OF DISTRIBUTING MILK TO CONSUMERS AS MEASURED BY DEALERS' GROSS HANDLING MARGINS IN 24 MARKETS, 1929 TO 1939^a

Wholesale costs of distributing milk from 1929-1939 were highest in Cincinnati and lowest in Los Angeles.

(Fig. 4). The 24 cities included in this comparison are the largest cities in the country. Changes in gross retail margins for each city from 1929 to 1939 are also shown in Figure 4.

Home deliveries of single quarts constitute only one part of total sales to homes. For example, in Chicago in August, 1940, it is reported that 48 percent of total sales were in single quarts, 30 percent in two-quart containers, and 22 percent of home deliveries were distributed in gallon lots.¹ Since the home delivery price per gallon was 40 cents and 22 cents for 2 quarts, as compared with 13 cents, the reported retail price for single quarts, the weighted average margin in Chicago for home deliveries was far less than that for single quarts. A similar situation has existed in St. Louis and other markets where consumers in increasing numbers have been taking advantage of quantity discounts.

Dealers' gross wholesale margins show an even wider range than their margins for home deliveries. Los Angeles, with a margin of 2.4 cents per quart, was lowest, while Cincinnati, with a margin of 6.33 cents per quart, was highest (Fig. 5). Thus, for this period, Cincinnati consumers paid 3.93 cents per quart more for store distribution than consumers in Los Angeles.

In January, 1939, store margins for the 24 cities averaged 5.6 cents per quart. This compared with 5.13 cents,² the average store distribution cost (1937) for Market X in California, and 3.16 cents² per quart in the San Bernardino area (Table 3).

From a practical viewpoint it is unreasonable to expect all dealers in all

^aData from United States Department of Agriculture Fluid Milk Reports and Trade Association Reports.

¹Information obtained through the courtesy of the Pure Milk Association.

²This assumes the cost of store distribution in these markets was 1 cent per quart. (See footnote 1, page 423.)

TABLE 4.—MILK DISTRIBUTION COSTS ON WHOLESALE ROUTES IN GLASS BOTTLES,
BOSTON, AND IN PAPER BOTTLES, NEW YORK
(cents per quart)

Milk dealers' costs	Boston ^a Glass bottles 1935	New York ^b Paper bottles Jan.-Mar., 1936
City plant.....	.85	.612
Containers.....	.12	1.347
Selling, delivery, collections.....	2.04	1.025
General and administrative.....	.08	.254
Total wholesale cost.....	3.09	3.24

^aFrom Summary Report on Cost of Distributing Milk in the Boston Market, October, 1936 (pp. 21 and 22). Prepared for the Massachusetts Milk Control Board by the Charles F. Rittenhouse and Company, Certified Public Accountants.

^bFrom American Cooperation, 1935, p. 495.

markets to attain the efficiency of the dealer whose costs are shown for San Bernardino. On the other hand, it is clear that costs to consumers, particularly for store distribution of milk, are unreasonably high in many cities, and can be materially reduced through use of more efficient methods. Since lower costs, if passed on to consumers in lower prices, will result in substantial increases in milk consumption, it is clearly to the interest of both consumers and farmers, that dealers in the United States adopt more generally the methods of distribution efficiency now being used by only a few dealers.

R. W. BARTLETT

RECENT DEVELOPMENTS IN FARM INCOME

Since 1932 farm income in the United States has shown a marked improvement. Gross farm income has increased from a low level of only a little more than 5½ billion dollars in 1932 to a post-depression high of 10½ billion dollars in 1937. As a result of the decline in business activity after 1937, farm income was considerably lower in 1938 and 1939 than in 1937, but present indications show that it will be almost as high in 1940 as in 1937.

The changes in gross farm income by years, from 1928 to date, are shown graphically in Figure 1. Income did not reach as high a level in either 1937 or 1940 as it did in 1928 and 1929, and it was less than half as much in 1932 as in 1928 and 1929.

Total farm income includes both cash income and the value of the farm products which are consumed by people on those farms where they are produced. Income from the sale of crops, livestock, and livestock products constitute the great bulk of the total income. It is usually called cash income from farm marketings, and is depicted by the black part of the bars in the diagram. As indicated by the shaded portion of the bars, farmers have received a considerable amount of income in the form of farm products produced and used by those living on the farm. Eggs, milk, butter, pork, and garden produce are the most important of these home-produced foodstuffs which constitute a part of the farmers' gross income.

From 1933 on, government payments have become an important item in farm income. These payments include rental and benefit payments, parity payments, etc. They are shown in the diagram by the blank portion in the top of the bars. Although government payments are a very important source of income for many farmers, they are only a small item as compared with other sources. These payments were largest in 1939, partly as a result of the policy of speeding up the payment of benefits in that year. The relatively small part which government payments play in the total farm income for the entire country may be somewhat of a surprise to some farmers in the corn belt until they remember that these payments are much smaller in many parts of the country than in the Middle West.

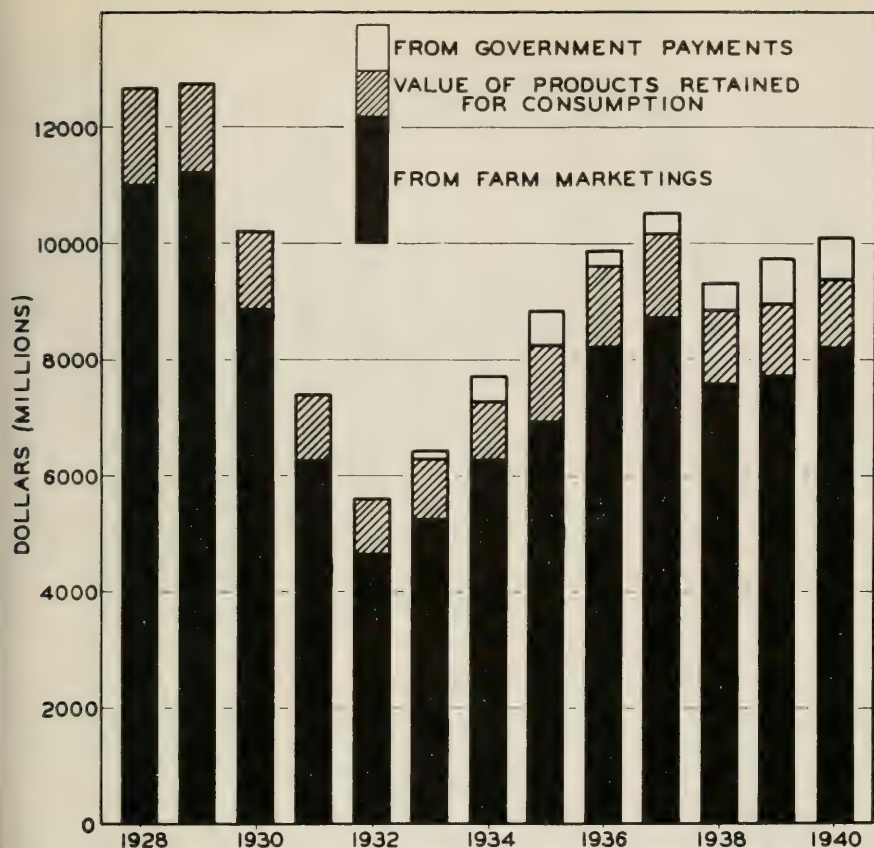


FIG. 1. GROSS FARM INCOME OF THE UNITED STATES IN CURRENT DOLLARS

Cash income of farmers measured in dollars, recovered rapidly from 1932 to 1936, but in no year since the depression has it been as large as in 1928 and 1929.

Figure 1, and the farm-income estimates from which it is drawn, may give the impression that farmers have not been nearly as well off in recent years as they were in 1928 and 1929. Such an impression would be erroneous, however, because farm welfare depends upon how much a dollar will buy as well as upon the number of dollars received, and the prices of the goods which farmers buy have been much lower in recent years than they were before the great depression.

In terms of dollars of constant purchasing power, farm income has been about as high in recent years as in 1928 and 1929. This fact is shown in Figure 2, which is similar to Figure 1 except that the value of the United States farm income has been adjusted for changes in the prices of goods purchased by farmers. The index used for this purpose is the United States Department of Agriculture index of prices paid by farmers. This index has been shifted to a 1935-1939 base; consequently, the resulting value figures may be said to be the farm income measured in terms of dollars of the same purchasing power to farmers as dollars had, on the average, in the years 1935-1939. In terms of such a measure of value, gross farm income in the 5 years 1936 to 1940 averaged 9,981 million dollars as compared with an average of 10,316 million dollars in the 2 years 1928 and 1929. In other words, when farm income is measured in terms of real goods, it is almost the same as the predepression level.

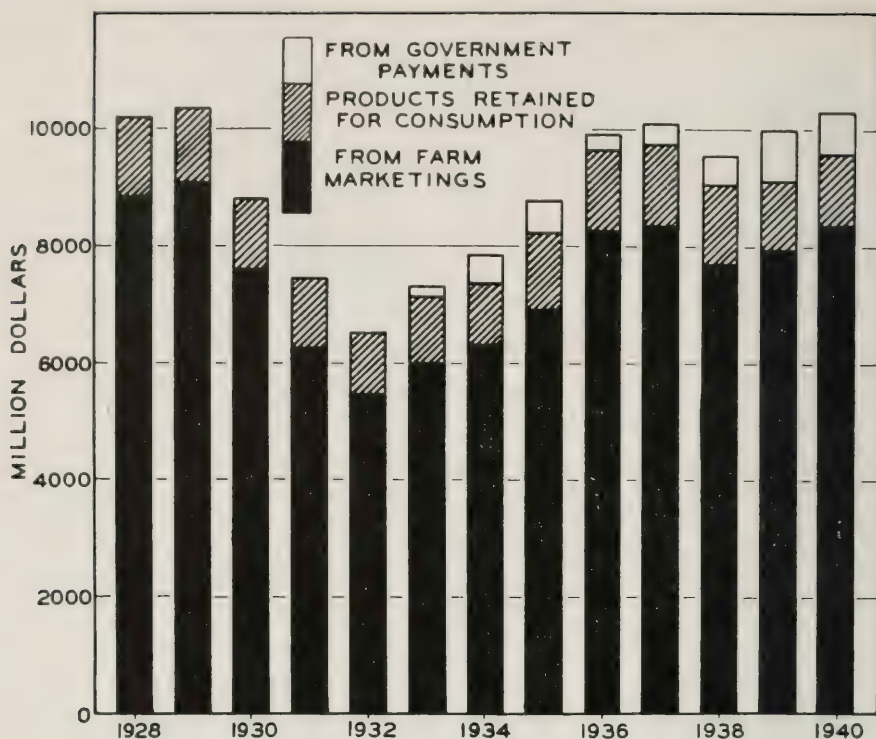


FIG. 2. GROSS FARM INCOME OF THE UNITED STATES IN DOLLARS OF 1935 TO 1939 PURCHASING POWER

If farm income is measured in terms of the things it will purchase, the level of the past 5 years has been almost as high as in 1928 and 1929.

This fact, of course, does not mean that farmers have received as much income as they would have received if our national economy had been operating satisfactorily. Due to technical improvements in all lines of production, we should now be able to produce much more than we did a dozen years ago. If we had a reasonably full volume of employment and utilization of our nonagricultural resources, the national income in recent years might have been 15-20 percent higher than it was. Farm income, of course, would share in the general improvement of the national income if there were a more adequate production of goods and services by nonagricultural industries.

Per Capita Changes. In any appraisal of the extent of farm prosperity in recent years compared with the predepression years, it is also necessary to take into account changes in farm population. In the past 12 years the number of persons living on farms has increased by approximately six percent, there being 32.2 million on January 1, 1940, compared with 30.2 million January 1, 1928. An accurate appraisal of the effects of changing farm population on the adequacy of a given "real" income would involve an examination of the population changes by age groups because the need for food, clothing and the other necessities and conveniences of life vary with age. A rough measure may be obtained, however, by merely dividing the real income figures (income in terms of dollars of 1935 to 1939 average purchasing power) for each year by the January 1 farm population. The resulting per capita gross income is shown in Figure 3.

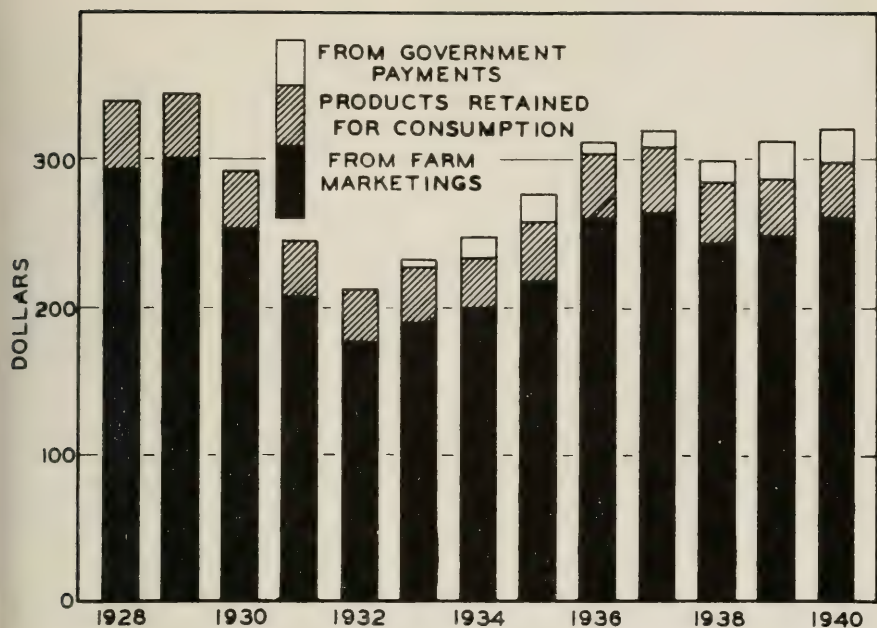


FIG. 3. PER CAPITA GROSS FARM INCOME OF THE UNITED STATES IN DOLLARS OF 1935 TO 1939 PURCHASING POWER

When account is taken of the increase in the number of people living on farms as well as of changes in the purchasing power of the dollar, it appears that gross farm income in recent years has been smaller than in 1928 and 1929.

It will be noted that real gross income per capita for each of the past 5 years has been somewhat below that of 1928 and 1929. For 1928 and 1929 per capita gross farm income measured in dollars of 1935-1939 purchasing power averaged \$342, whereas in the five years 1936 to 1940 it has averaged only \$313. Similarly, cash income per capita averaged \$297 for 1928 and 1929, whereas for the years 1936 to 1940 cash income not including government payments averaged \$255 and cash income including government payments \$271 per person living on farms. All these figures are in terms of dollars of 1935-1939 purchasing power.

The foregoing figures all relate to gross farm income. No deduction has been made for the cost of fuel, depreciation of machinery and buildings and other expenses of production which are paid for nonagricultural products.

Net farm income is what remains for farm people after paying for those goods and services used in agricultural production that are produced by nonfarm people. It is much less than gross income amounting, for the country as a whole, to only about half as much as gross farm income. Fluctuations of net farm income are much greater than of gross income because expenses of production change less than does gross farm income.

Prospects for 1941. Because farm income depends primarily on the domestic demand for farm products, present indications point to a marked increase in 1941. Due in part to the armament program, a business boom is now underway; and, in spite of a poor foreign demand for our farm products, the increased domestic demand is bringing about an improvement in the average level of prices of farm products.

E. J. WORKING

SOME FARM-LAND INHERITANCE FACTS, CHAMPAIGN COUNTY, ILLINOIS, 1860-1939

A study of Champaign county probate records brought out the following four points:

1. Persons who left farm land at the time of their death in 1930 or shortly before that date were still listed as owners of at least part of their farm land not only for the two years which are ordinarily required to settle estates but also for periods which were several times as long. Paying taxes in the name of deceased persons seems to have been a well-established practice.

2. If the Chinese method, whereby the government has a right to buy land at the valuation volunteered for it by its owners, had been applied to inherited farm land in Champaign county about 1910, 1920, or 1930, the heirs might have insisted upon valuing the farm land nearer to what the census showed land then to be worth. Federal and Illinois inheritance taxes were not paid by as many heirs or in as large amounts as full valuation would probably have required.

3. The estates of more deceased persons were being entered for probate for every 1,000 farms in the county in 1910, 1920, and 1930 than might have been expected from state-wide estimates on the proportion of farms that were changing hands. The number of owners dying yearly during the three dates mentioned was 15 to 17 for every 1,000 farms. Some of them only owned parts of farms as actually operated, but some owned two or more farms. The number of farms changing hands yearly in Illinois from 1926 to 1939 ranged from 8 to 16 for every 1,000 farms, or an average of 12. Landownership in Champaign county in recent decades has been largely in the hands of persons of advanced years.

4. The place of landownership in Champaign county's inheritance story has been declining in recent decades. Of all the estates entered for probate in 1910, 47 percent of them had some farm land (three acres or more); 23 percent in 1920; and 25 percent in 1930. The proportion of the total population in Champaign county living in rural districts was 43 percent in 1910, 37 percent in 1920, and only 26 percent in 1930. Furthermore, some professional people and others living in towns were among those owners whose estates were probated in the period indicated.

The above changes in recent decades require a brief interpretation in the light of other known facts which concern recent practices, on one hand, and, on the other hand, conditions which existed when the county was younger.

1. The average time that elapsed before the discharge of the executor or administrator for estates having farm land was 2 years and 6 days after the date of entry for probate. Of 27 estates entered in 1930 and settled with the discharge date noted, the tax books showed the names of the successors for 5 estates that same year; for 7, the next year; and for 9, the third to ninth years. Six estates were still being carried on the tax books in the names of the decedents 8 years after the estates were settled, or about ten years after the estates were entered for probate. The long persistence of this practice may have had something to do with the enactment of a state law in 1939 which required that property be listed in the name of the current owner.

2. In 1890, the average value per acre of farm realty in estates probated in Champaign county was \$49, the same as that shown in the census. In 1900, the average was \$74, 8 percent under the census figure; in 1910, \$144, 24 percent under the census figure; in 1920, \$305, 26 percent under the census figure; and in 1930, \$109, 35 percent under the census figure.

The slumping of assigned values of inherited land below the census figures at recent dates is attributed largely to inheritance taxation, especially since the federal legislation of 1909. Under the federal inheritance tax system, an exemption of \$20,000 applies to all net estates; the tax on the first \$30,000 is 1 percent

and it becomes progressively higher thereafter. Under the state inheritance tax system, an exemption of \$20,000 is likewise allowed for net estates taken by any individual heir. For brother or sister, however, the exemption is \$10,000; for Class 2 heirs, \$500; and for Class 3 heirs, \$100. Rates start at 2 percent in the state system. When an estate shows a value above \$20,000, especially if it all goes to one or two heirs, inheritance taxes can warrant considerable attention. Heirs naturally hope that low values will be approved by government officers. If, however, the inherited land is sold at prices well above a figure made low for purposes of inheritance taxes, federal income taxes may mount against the selling heir and defeat in part or wholly the advantage he gained from undervaluing the property at the time of inheritance.

Probated estate land was also valued at figures below the census averages in years prior to federal inheritance taxation. In 1860, the probated estate land, valued at \$14 an acre in Champaign county, was 59 percent below the census figure; in 1870, valued at \$28, 30 percent below; and in 1880, valued at \$20, 39 percent below. Much of the land first made into farms in this county was not destined to be included with the highest-priced area after drainage and other developments were added to the farm-land area. Land that later proved to be most highly valued was not given full representation in the estates admitted to probate in 1860 and other early dates in the period studied.

3. Although the number of farm-land estates entered for probate per 1,000 farms has been higher in Champaign county than in the state as a whole in recent years, it was below the probable state average in 1860 and other early dates. The number was apparently 4 to 6 per 1,000 farms in 1860 to 1890, as compared with 15 to 17 recently. Only about one-fourth of what later proved to be farm area in Champaign county was included in farms in 1860, but expansion continued in the 1860's and 1870's. Young couples who took ownership of these new farms survived into the 1890's or beyond 1900 in many cases. Thus, while the tide in numbers of farm-land estates per 1,000 farms was high in the early part of the twentieth century, it was correspondingly low a third to a half century before.

4. The ratio of farm-land estates to all estates probated in Champaign county was lower in 1920 and 1930 than in 1910, but it had also been low before 1910. In 1870 to 1910, farm-land estates were from 35 to 42 percent of all estates; and in 1860, they were only 20 percent. Although the recent lows are explained by the decreased ratios which farm people have become of all the people in the county and which farm income has become of the total income in the county, the explanation for earlier dates is different. In 1860, and for some decades thereafter, farm people were relatively young. Some residents of villages and cities found opportunities to use investment funds in town real-estate developments and in local business establishments serving rural needs. Although farm land had its investment attractions for residents of cities and villages, the favorite period for such investment was after the 1860's and 1870's.

The total number of probated estates containing farm land was only 5 in 1860; between 19 and 40, in 1870 to 1900; 58, in 1910; 54, in 1920; and 56, in 1930. Of the 8 decennial years studied, 1920 showed the largest number of all estates probated, 235.

Although the decease of the first-named author, Mr. A. V. Houghton, a few weeks before the completion of this summary has restricted the results that might otherwise have been attained in the study, the surviving author wishes to point out that Mr. Houghton opened up a comparatively untouched field of study so far as concerns the United States. The importance of similar studies in other counties, both with respect to farm-land estates and other estates, is emphasized by this pioneer endeavor.

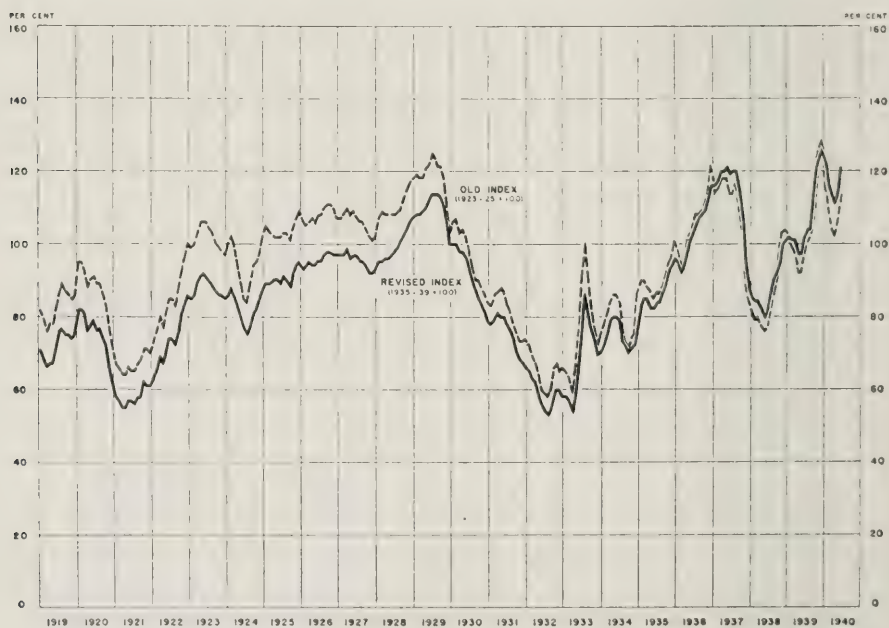
A. V. HOUGHTON and C. L. STEWART¹

¹The assistance of L. D. Malotky, Department of Agricultural Economics, of officers of Champaign county, and of colleagues of Mr. Houghton in the Department of Sociology, is acknowledged.

REVISED INDEX OF INDUSTRIAL PRODUCTION

The level of business activity is an important measure of domestic demand for farm products. At present there are several indexes that are useful as indicators of business conditions. One of the most important of these is the index of industrial production published by the Board of Governors of the Federal Reserve System which is carried currently in *Illinois Farm Economics*. This index is not a complete measure of general business activity, for it includes only production of manufactures and minerals. It fails to consider production of other goods, including utilities and services which are becoming increasingly important. Even though it is not an all-inclusive measure of activity in business, it is a good indicator of cyclical fluctuations for it includes the two outstanding groups of industries where cyclical fluctuations are especially important, mining and manufacturing.

The industrial production index was first published about twenty years ago at a time when many of our present industries were in an early stage of development or some were not yet even heard of. At the time of its early publication the index fairly adequately measured the output of industrial production. Since that time, however, some industries which either were not included or were given very small weights in the old index have developed very rapidly and production in these industries now constitutes a significant fraction of total industrial production. This group includes machinery, glass, aircraft, and rayon manufacturing. On the other hand some of the older industries have become less important. Because of this failure of the old index to give proper weight to the more rapidly expanding industries, the Board of Governors of the Federal Reserve System



FEDERAL RESERVE BULLETIN

FIG. 1. INDEX OF INDUSTRIAL PRODUCTION, REVISED INDEX AND OLD INDEX
ADJUSTED FOR SEASONAL VARIATION

The amount of long-term growth is greater but the amount of the short-time change is less for the revised index than for the old index.

recently revised the industrial production index series, giving greater weight to the new industries. The base period was changed from 1923-1925 to 1935-1939.

The new index and the old index are similar in their general movements, as shown in Figure 1. The main difference between the two is in the long-time growth. There are also some differences in degree of fluctuation for shorter periods. According to the new index, production in the period 1935-1939 is 13% higher than that of 1923-1925, whereas according to the old index, production is 1% lower in the later period than in the earlier. Differences in the short-time fluctuations are especially apparent in the declines and subsequent recoveries of 1924 and 1940. Because of the advantages associated with the use of the new index and the expressed intent of governmental agencies to use this index for many purposes, it is expected that many other government indexes will be changed to the 1935-1939 base. The general adoption of such a base would make comparison of index numbers easier. We are therefore adopting the new index and will carry it in Table A of *Illinois Farm Economics*. For comparative purposes, however, this issue carries both the old and the new series for the years 1929-1939 and for current months.

F. G. WARREN

Footnotes for the following page:

¹⁻¹²The first source is for annual data; the second is for current data from which tables may be brought to date.

¹Survey of Current Business, 1936 supplement, U.S. Dept. of Commerce; subsequent monthly issues. ²Same as footnote 1. ³Illinois Crop and Livestock Statistics, Circular 438 (1937); monthly mimeographs of Statistical Tables for Illinois Crop Report, converted from 1910-14 = 100 to 1924-29 = 100 by multiplying by .7151. ⁴Agricultural Situation, Bureau of Agricultural Economics, U.S.D.A.; Agricultural Situation, converted from 1910-14 = 100 to 1924-29 = 100 by multiplying by .6486. ⁵Calculated from data furnished by Bureau of Agricultural Economics; Survey of Current Business, seasonally adjusted. ⁶Calculated by Department of Agricultural Economics, University of Illinois, seasonally adjusted. Data from Farm Income, Bureau of Agricultural Economics; B.A.E. monthly mimeograph. Receipts from Sale of Principal Farm Products (government payments not included). ⁷Obtained by dividing Index of Illinois Farm Income (column 6) by Index of Prices Paid by Farmers (column 4). ⁸Monthly Indexes of Non-Agricultural and National Income, Supplement, August, 1937, B.A.E.; Price and Demand Situation, or Agricultural Situation. ⁹Survey of Current Business, 1938 Revision; subsequent monthly issues, unadjusted for seasonal variation. ¹⁰Federal Reserve Bulletin of Federal Reserve Board, September, 1933 and subsequent issues; Survey of Current Business, seasonally adjusted. ¹¹Preliminary estimate. ¹²Illinois Crop and Livestock Statistics, Cir. 438; Monthly price releases, State Agricultural Statistician.

TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural income ⁸	Factory payrolls ⁹	Industrial production ¹⁰	
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. In money ⁵	Illinois				Old	Revised
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷				
Base period	1926	1926	1924-29	1924-29	1924-29	1924-29	1924-29	1924-29	1923-25	1923-25	1935-39
1929	95	105	104	99	103	103	104	107	110	119	110
1930	86	88	89	94	83	87	93	100	89	96	91
1931	73	65	62	80	58	58	72	87	68	81	75
1932	65	48	41	69	43	43	62	68	47	64	58
1933	66	51	45	71	49	51	72	63	50	76	69
1934	75	65	61	80	57	55	69	72	64	79	75
1935	80	79	82	81	64	65	80	77	74	90	87
1936	81	81	86	80	74	82	103	90	86	105	103
1937	86	86	96	84	80	87	103	95	102	110	113
1938	79	69	69	80	72	81	101	88	78	86	88
1939	77	65	65	78	72	81	97	93	91	105	108
1939 Oct.	79	67	67	79	76	101	127	95	102	121	121
Nov.	79	67	67	79	76	93	117	96	102	124	124
Dec.	79	68	66	79	79	99	125	97	104	128	126
1940 Jan.	79	69	68	79	79	100	126	97	98	119	122
Feb.	79	68	67	79	83	100	126	96	98	109	116
Mar.	78	68	66	79	76	98	124	96	98	104	112
Apr.	79	69	67	80	82	76	96	95	96	102	111
May	78	68	69	80	80	90	112	91	96	106	115
June	78	66	65	80	70	71	89	97	98	114	121
July	78	66	67	79	71	72	90	98	96	116 ¹¹	121
Aug.	77	66	69	79	71	80	101	99	104	118 ¹¹	121
Sept.	78	66	72	79	74 ¹¹	...	...	100 ¹¹	109	...	125 ¹¹
Oct.	78 ¹¹	66 ¹¹	72	79	...	...	...	...	...	...	128 ¹¹

TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS¹²

Product	Calendar year average			October 1939	Current months		
	1924-29	1938	1939		August	September	October
Corn, bu.	\$.81	\$.45	\$.43	\$.42	\$.60	\$.59	\$.58
Oats, bu.	.42	.24	.28	.28	.26	.27	.28
Wheat, bu.	1.30	.68	.67	.74	.66	.69	.75
Barley, bu.	.66	.53	.41	.44	.44	.45	.48
Soybeans, bu.	1.94	.75	.74	.70	.63	.67	.65
Hogs, cwt.	9.97	8.06	6.56	6.70	6.10	6.40	6.00
Beef cattle, cwt.	8.57	7.68	8.18	8.40	9.10	9.60	9.60
Lambs, cwt.	12.22	7.76	8.18	8.30	8.40	8.20	8.00
Milk cows, head.	78.00	60.00	63.00	62.00	66.00	64.00	65.00
Veal calves, cwt.	11.27	8.89	9.15	9.60	9.50	9.80	9.70
Sheep, cwt.	6.52	3.36	3.44	3.20	3.10	3.35	3.45
Butterfat, lb.	.42	.25	.23	.25	.25	.25	.27
Milk, cwt.	2.32	1.66	1.59	1.80	1.65	1.70	1.75
Eggs, doz.	.30	.19	.16	.20	.13	.17	.20
Chickens, lb.	.21	.15	.13	.12	.13	.14	.13
Wool, lb.	.36	.21	.25	.33	.28	.29	.31
Apples, bu.	1.59	.95	1.07	.70	1.05	1.00	.90
Hay, ton.	13.88	7.65	6.05	5.80	6.30	6.80	6.70
Potatoes, bu.	1.39	.73	.80	.80	.75	.75	.70

¹⁻¹²For sources of data in tables see previous page.

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Number 67

EFFECTS OF THE UNIFORMITY OF CORN LOANS, REGARDLESS OF LOCATION

Under the authority of the "Agricultural Adjustment Act of 1938," the Commodity Credit Corporation is directed to make available loans on corn to cooperators in the acreage adjustment programs at rates set forth in the Act. In the commercial corn-producing area, which includes all but three Illinois counties, the formula of the Act applying for the 1940-41 marketing year is as follows: "Seventy-five percentum of such parity price, if the November crop estimate does not exceed a normal year's consumption and exports and if the farm price of corn is below 75 percentum of the parity price on November 15." This formula requires a loan of 61 cents per bushel in 1940-41. Only the crop is taken into consideration as a supply factor in determining the loan formula; the carry-over is not considered.

Corn loans offered to cooperators in the commercial corn-growing area have always been uniform in amount, regardless of location. This area extends from central Ohio on the east to southeastern South Dakota and central Nebraska on the west and from southern Minnesota on the north to northern Kentucky on the south.

A different policy is followed in connection with wheat loans: For this commodity, the loans at various base points, such as St. Louis, Kansas City, and Minneapolis, vary in accordance with usual transportation and class differentials. These loan differentials permit trading to take place on approximately the usual basis in these different markets. The language of the statute has no substantial differences authorizing the wheat and corn loans. The law provides that the amount, terms, and conditions of loans shall be fixed by the Secretary of Agriculture subject to the approval of the Commodity Credit Corporation and the President of the United States.

Corn varies in economic value within this huge area for which uniform loans are made. These variations are not based primarily on the cost of moving corn from surplus to deficit areas, although this factor is influential in some areas. These variations are based on the differences in the value of the livestock which consumes the corn in the different areas, and the differences in the value of the livestock, in turn, depend on the differences in transportation costs. Although this concentration of corn caused by feeding it to livestock reduces geographical differences in corn prices, the livestock prices and, therefore, the value of corn vary between different sections of the corn belt, typically declining from east to west. Hogs commonly average higher in price in central Ohio than in western Iowa, southwestern Minnesota, or southeastern South Dakota. Hence, corn is worth more in the former area than in the latter.

Between the important corn-shipping areas (principally eastern and central Illinois and northwestern Iowa), market differentials must be established which reflect the cost of moving corn into or through common centers. Thus, the price of corn in northwestern Iowa must be lower than it is in eastern Illinois if

TABLE 1.—FACTS ABOUT CORN CROPS AND 1940 CARRYOVER ON FARMS IN SELECTED STATES

State	Crops of		Carryover on farms, October 1, 1940	Carryover on farms, as percent of 1938-1939 crop	Crop of 1940, November estimate
	1928-1938	1938-1939			
	(million bushels)				(million bushels)
Ohio.....	135	164	14	8	119
Indiana.....	152	193	18	9	142
Illinois.....	311	402	97	24	322
Michigan.....	45	58	6	10	52
Wisconsin.....	73	89	4	4	95
Minnesota.....	138	182	69	38	173
Iowa.....	394	492	236	48	458
Missouri.....	108	116	17	14	114
South Dakota.....	49	41	16	39	50
Nebraska.....	150	95	37	39	105
Kansas.....	68	41	4	10	42

farmers in both areas are to market corn which moves into common market territory either as grain or as corn products. The price of corn will be higher in deficit areas than in nearby surplus areas. The location of such areas shifts from year to year and within the year in response to local supplies, which, in turn, are largely determined by climatic conditions.

What consequences would be expected from a corn loan that does not recognize these basic price differentials? To answer this question, we must consider the farmer's reasoning in obtaining or disregarding a loan on his corn. Typically, he looks on the loan as an alternative market. If it offers a better market than does selling in the cash market or feeding livestock, he obtains a loan on some or all of his corn. The loan looks more attractive in the more remote areas, where both corn and livestock are lower in price than they are in areas closer to market. Moreover, market demands in areas closer to market will tend to raise the price of corn above the loan price and thus cause farmers to redeem corn on which they had received loans before corn is drawn from under loan in more distant regions. These expectations would follow if the ordinary rules of economic reasoning were applied to the situation. Just as water accumulates in the low lands, so, under a uniform loan, corn will accumulate in the areas where it is naturally lowest in price.

The plan to date has worked out as might be expected: The bulk of the corn carried over on farms has concentrated in the western end of the corn belt (Table 1). The 1938 and 1939 corn crops of Indiana and Ohio averaged about one-fourth above their 10-year average; yet, the farm stocks carried over on October 1, 1940, were only 8 to 9 percent of the average of the two previous crops. The apparatus of the "ever-normal granary" did not operate to create reserve supplies of corn for farmers in these two states against the short crop of 1940, when the combined crops in the two states totaled 26 million bushels or nearly 10 percent below the 10-year average and 96 million bushels below the crops of 1938 and 1939 to which they have geared their livestock production. On the other hand, Iowa carried over 48 percent of her average crop of the previous two years and then, in 1940, harvested a corn crop which was above the 10-year average. Carryovers which are particularly large in relation to previous crops have been built up in Iowa, Nebraska, and Minnesota.

The situation is intermediate in Illinois, where the price of corn was sufficiently high in 1939-40 to draw enough corn off the farms so that the actual stocks on October 1, 1940, were below those of a year earlier. In Illinois, nearly 400 million bushels were disposed of annually between October, 1938, and September, 1940. If allowances are made for the amount of corn which was delivered to the AAA as payment on loans, the rate of consumption will be sufficiently high so that the 321 million bushels harvested in 1940 will not fill the annual demands, and carryover stocks will be reduced during the current year.

The comparison between Indiana and Ohio on the east and Iowa and Minnesota on the west shows that the uniform corn loan has not met its first test with respect to safe-guarding an area against the consequences of a short corn crop. The eastern corn belt has a short crop and no reserve stock. The surplus stocks are in the country, of course, but a great deal of expense would be involved in moving corn from northwestern Iowa to Indiana and Ohio. The likely consequence will be a liquidation of livestock in the east and a further accumulation of corn in the western corn belt until the price of hogs rises sufficiently to stimulate further feeding there. The effect will be to make hog production more erratic than it would be if supplies of corn were more uniformly distributed.

All students of price-fixing schemes recognize that proper relationships must be maintained between fixed and unfixed prices. Although the corn loan is not an outright price-fixing scheme, it has many of the characteristics of one and should be sufficiently refined to be workable over a period of time and to accomplish its stated objectives. The present plan of a uniform loan, regardless of location, is obviously an extremely crude mechanism. Refinements, such as the establishment of regional differentials in prices and an allowance for the carryover in determining the size of the loan, are desirable. The establishment of regional differentials in price would tend to distribute the carryover over the entire corn belt and to equally safeguard all areas against a lack of carryover in years of low production.

L. J. NORTON

VARIATIONS IN FARM ORGANIZATION ASSOCIATED WITH VARIATIONS IN PROPORTIONS OF TILLABLE LAND IN HAY AND PASTURE IN NORTHERN ILLINOIS, 1936

The use of hay and pasture crops in the corn belt has increased with the increased emphasis upon soil conservation. As a result, farmers and agricultural workers have developed an interest in the differences of organization on farms producing large and small amounts of roughage crops. An investigation was made to ascertain some differences that might be expected among farms with different proportions of tillable land utilized for hay and pasture. For this purpose, data were used which two Farm Bureau Farm Management Service associations had gathered in 1936 and 1937 from records on 375 farms in north central Illinois. The farms included were those which had a high land value and a high percentage of the land area tillable. The investigation dealt with crop and livestock production and the financial organization of the farm.

The same farms were used for both years, and since essentially the same relationships among the groups prevailed in 1937 as in 1936, except as 1937 data may have been affected by the 1936 drouth, only data for 1936 will be presented in this report. The data report the changes in organization that are associated with differences in the proportion of hay and pasture on tillable land among the various farms studied. They do not report year-to-year changes which result from changes in the acreages of hay and pasture on the same farms. The results must be interpreted accordingly. One farm may have a different proportion of tillable land in corn after the proportion of hay and pasture is increased than another where a larger proportion of the tillable land has been in hay and pasture for a number of years. Physical conditions of the soil, such as fertility, topography, or drainage, may cause this difference. Although this study does not represent conditions on the average farm in the area, it is believed that the results of an analysis of a large sample of farms where conditions are comparable would be valuable in estimating the influence upon farm organization of an expansion of hay and pasture crops in the area. Differences which prevailed among the groups studied should be fairly typical of those found on average farms.

TABLE 1.—USE OF LAND ON 375 NORTH-CENTRAL ILLINOIS FARMS AS RELATED TO THE PERCENT OF TILLABLE LAND IN HAY AND PASTURE, 1936

Item	Percent of tillable land in hay and pasture								
	0.0-4.9	5.0-9.9	10.0-14.9	15.0-19.9	20.0-24.9	25.0-29.9	30.0-34.9	35.0 and over	All farms
Number of farms.....	3	28	48	99	86	62	36	13	375
Acres per farm.....	346.3	322.1	272.7	256.4	272.7	226.5	245.7	239.3	261.3
Percent of tillable land.....	89.2	88.7	88.3	90.2	88.5	88.9	83.4	77.5	88.2
Percent of tillable land in grain	(92.1)	(82.9)	(81.7)	(74.2)	(69.8)	(65.5)	(63.0)	(56.7)	(72.4)
Corn.....	51.3	47.5	49.4	45.3	43.0	40.8	42.1	32.7	44.3
Soybeans.....	5.1	14.6	11.2	8.3	7.0	5.0	2.7	2.6	7.8
Oats.....	22.2	16.8	17.9	17.1	16.2	15.9	16.5	15.0	16.7
Wheat.....	13.5	3.9	2.8	2.9	3.4	2.9	1.3	5.2	3.1
Barley.....	.0	.1	.4	.6	.2	.9	.4	1.2	.5
Percent of tillable land in roughages.....	(.3)	(8.1)	(13.6)	(18.2)	(22.7)	(28.5)	(30.9)	(39.1)	(20.7)
Clover.....	.0	3.2	7.0	9.8	11.5	13.4	12.9	15.7	10.0
Alfalfa.....	.3	2.0	3.3	4.5	4.9	6.4	7.6	11.5	4.9
Soybeans.....	.0	1.2	1.2	1.2	.8	1.8	2.1	.8	1.3
Timothy and bluegrass.....	.0	1.3	1.3	2.0	3.0	2.7	5.8	4.3	2.5
Mixed.....	.0	.4	.8	.7	2.5	4.2	2.5	6.8	2.0
Percent of tillable land in miscellaneous crops.....	7.6	9.0	4.7	7.6	7.5	6.0	6.1	4.2	6.9

Grain crops. An increase in the percentage of the total tillable land used for hay and pasture obviously results in a corresponding decrease in the proportion of tillable land available for grain crops. In general, as the total acreage in grain crops declined, the acreage in corn and soybeans declined (Table 1 and Fig. 1). Oats remained about the same, but the case is not so clear for wheat and barley. Increased percentages in the amount of tillable land in clover, alfalfa, timothy, bluegrass and mixed hay, and, to a less extent, soybean hay contributed to the increased percentages in the amount of tillable land in hay and pasture. The farms are not comparable, however, in all respects. Those farms with a larger proportion of roughage crops tended to be smaller in size than were the farms with a smaller proportion. For the six lower groups, however, the percent of tillable land varied only from 88.3 to 90.2. Where a large fraction of the tillable land was in hay and pasture, as in the upper two classifications, a smaller percentage of the farm was tillable. This suggests possible differences in the

TABLE 2.—VARIATIONS IN THE PERCENTAGE OF GRAIN LAND IN CERTAIN GRAIN CROPS AND HAY AND PASTURE LAND IN ROUGHAGE CROPS ASSOCIATED WITH VARIATIONS IN THE PERCENTAGE OF TILLABLE LAND IN HAY AND PASTURE (375 Northern Illinois Farms, 1936)

Item	Percent of tillable land in hay and pasture								
	0.0-4.9	5.0-9.9	10.0-14.9	15.0-19.9	20.0-24.9	25.0-29.9	30.0-34.9	35.0 and over	All farms
Grains									
Corn.....	55.7	57.3	60.5	61.1	61.6	62.3	66.8	57.7	61.2
Soybeans.....	5.5	17.6	13.7	11.2	10.0	7.6	4.3	4.6	10.8
Oats.....	24.1	20.3	21.9	23.0	23.2	24.3	26.2	26.4	23.0
Wheat.....	14.7	4.7	3.4	3.9	4.9	4.4	2.1	9.2	4.3
Barley.....	.0	.1	.5	.8	.3	1.4	.6	2.1	.7
All grains.....	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)
Roughages									
Clover.....	.0	39.5	51.5	53.8	50.7	47.0	41.8	40.2	48.3
Alfalfa.....	100.0	24.7	24.3	24.7	21.6	22.5	24.6	29.4	23.7
Soybeans.....	.0	14.8	8.8	6.6	3.5	6.3	6.8	2.0	6.3
Timothy and bluegrass.....	.0	16.1	9.5	11.0	13.2	9.5	18.7	11.0	12.1
Mixed.....	.0	4.9	5.9	3.9	11.0	14.7	8.1	17.4	9.6
All roughages.....	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)

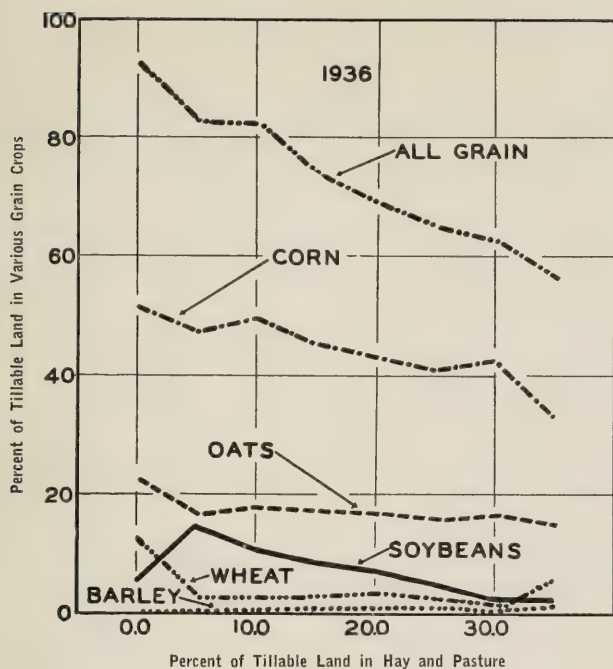


FIG. 1.—PERCENT OF TILLABLE LAND IN VARIOUS GRAIN CROPS AS RELATED TO PERCENT OF TILLABLE LAND IN HAY AND PASTURE, 1936

As the percent of tillable land in hay and pasture increased, the percent in the principal grain crops, especially corn and soybeans, decreased. The decline in oats was moderate, that in wheat and barley hardly noticeable.

soil of the farms with the largest percentage of tillable land in hay and pasture, as compared with the farms in other groups. There was a tendency for the farms with more than 30 percent of tillable land in hay and pasture to be located in the more rolling portion of the area.

A significant measure of the organization and management practices followed by farmers is indicated by variations in their cropping systems in relation to variations in the proportions of tillable land used in hay and pasture (Table 2 and Fig. 2). As the percentage of tillable land in hay and pasture increased (or as the percentage in grain decreased), the proportion of the remaining tillable land used for soybeans as grain was substantially reduced. In the areas studied, however, the records indicate that the proportion of the grain land in corn and oat production tended to increase and that in wheat and barley remained fairly constant. These facts suggest that farmers are more reluctant to reduce their acreage of corn, which is ordinarily considered a high-profit crop, than they are to reduce their acreage of soybeans. Doubtless, the fact that oats fit into the rotation following corn and serve as a nurse crop to clovers and alfalfa tend to maintain the proportion that is devoted to oat production.

Livestock. There was a marked tendency for the amount of livestock to be increased as the proportion of roughage crops in the rotation increased. The channels through which the products of a cropping system are disposed of are definitely more limited where a large proportion of the tillable land is in forage crops than where a large proportion is in grain crops. Grain can be marketed directly as a cash crop, or it can be marketed through livestock. The low value

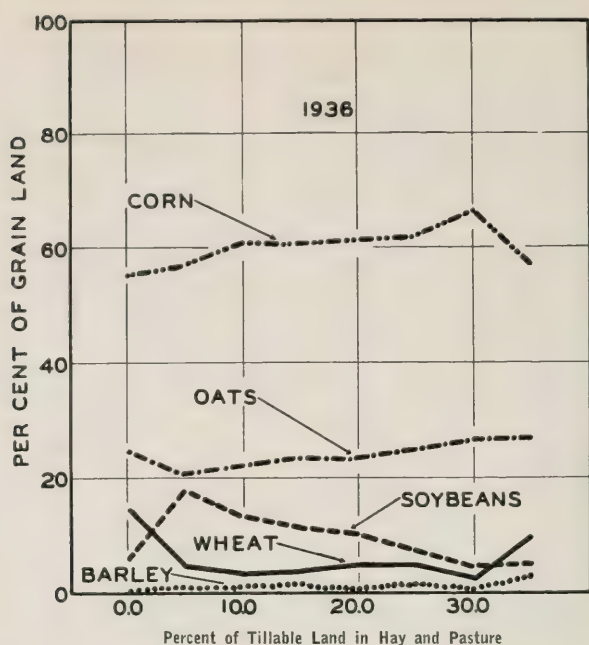


FIG. 2.—PERCENT OF GRAIN LAND IN VARIOUS CROPS AS RELATED TO PERCENT OF TILLABLE LAND IN HAY AND PASTURE, 1936

Although the percent of total crop land in grains declined as the percent of tillable land in hay and pasture increased, corn and oats made up an increasing percentage of the land devoted to grain crops. The acreage of soybeans declined not only absolutely but also as a percentage of grain land as the percent of tillable land in hay and pasture increased.

of hay, however, compared to transportation costs makes it necessary for hay to be utilized to a large extent upon the farm where produced. Pasture is also utilized for feeding livestock. It may well be expected, therefore, that on the average, more feed would be fed, and a relatively large proportion of income would be obtained from livestock on farms having a high percentage of tillable land in forage crops.

The value of feed fed per 100 acres to livestock on these farms producing large amounts of roughage crops was more than twice as great as on those producing small amounts (Table 3 and Fig. 3). The value of feed fed per 100 acres

TABLE 3.—VALUE OF FEED FED PER 100 ACRES TO DIFFERENT CLASSES OF LIVESTOCK AS RELATED TO PERCENT OF TILLABLE LAND IN HAY AND PASTURE, 1936*

Percent of tillable land in hay and pasture	Productive livestock	Cattle	Hogs	Sheep	Poultry
0.0- 4.9	\$ 946	\$653	\$259	\$ 2	\$32
5.0- 9.9	835	420	337	12	66
10.0-14.9	945	484	375	24	62
15.0-19.9	1 247	637	481	51	78
20.0-24.9	1 266	687	453	62	64
25.0-29.9	1 713	863	670	86	94
30.0-34.9	1 961	1 138	662	102	59
35.0 and over	1 401	783	443	92	83
All farms	1 307	691	487	57	72

*Grain prices were based on those reported by the Illinois Crop Reporting Service. Inventory prices of hay and silage were charged. Pasture charges were adjusted as nearly as possible to the customary pasture rental rates. Purchased supplements were charged at cost.

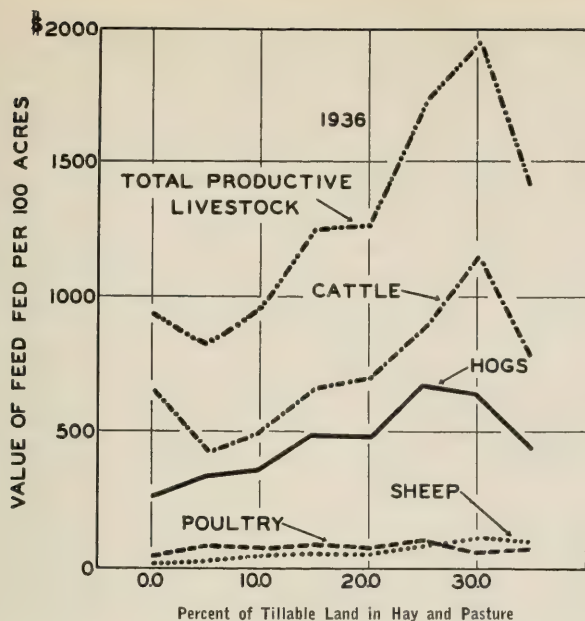


FIG. 3.—VALUE OF FEED FED PER HUNDRED ACRES TO PRODUCTIVE LIVESTOCK AS RELATED TO PERCENT OF TILLABLE LAND IN HAY AND PASTURE, 1936

In general the value of feed fed per hundred acres increased for cattle, hogs, and sheep as the percent of tillable land in hay and pasture increased.

to cattle was almost three times as much and to hogs twice as much on farms with 30 to 35 percent of tillable land in hay and pasture as compared with those having from 5 to 10 percent. The value of feed fed to sheep, although of minor importance, increased quite rapidly; while that to poultry did not vary greatly or consistently.

The heavier concentration of livestock, as measured in terms of per acre or per 100 acre units, appeared to be on those farms which had a smaller number of acres. Although the measurement of relative quality of land on farms in the different groups is difficult, the factor of productivity and adaptability of land to crop production must be considered. A considerable portion of the land in the area is in need of limestone before sweet clover, alfalfa, or other sweet-soil crops can be produced successfully. Unless these crops can be grown, the farmer will favor the production of cash grain rather than livestock.

The increase in the investment in livestock offers further evidence that livestock production increased as the production of roughage crops increased (Table 4). Changes in the value of feed fed show similar relationships.

Investment in land and buildings. The investment in farm improvements increased as the proportion of the tillable land in hay and pasture increased. Increased need for livestock shelter and for feed storage doubtless contributed to this increase. The investment in land per farm tended to show a decrease as the proportion of roughage crops increased. The decrease in investment per farm corresponded to the decrease in the number of acres per farm, since the value per acre did not vary greatly. The percent of the total investment in land tended to decrease as the percent of tillable land in forages increased. Investment in land made up by far a larger proportion of the total investment than the other items.

TABLE 4.—AVERAGE INVESTMENT PER FARM AS RELATED TO PERCENT OF TILLABLE LAND IN HAY AND PASTURE, 1936

Item	Percent of tillable land in hay and pasture								
	0.0-4.9	5.0-9.9	10.0-14.9	15.0-19.9	20.0-24.9	25.0-29.9	30.0-34.9	35.0 and over	All farms
Land.....	\$45 651	\$41 083	\$35 255	\$34 444	\$36 578	\$30 205	\$30 993	\$26 914	\$34 329
Farm improvements.....	4 182	5 415	5 017	5 516	6 330	5 731	7 165	7 923	5 898
Horses.....	292	522	439	513	559	530	640	561	530
Total productive livestock.....	(2 627)	(2 313)	(2 128)	(2 883)	(3 102)	(3 382)	(4 407)	(3 445)	(3 040)
Cattle.....	1 872	1 298	1 294	1 783	1 938	2 091	2 874	2 353	1 896
Hogs.....	644	706	670	804	845	917	978	818	823
Sheep.....	12	87	37	150	194	186	427	149	172
Poultry.....	99	109	125	142	125	167	125	125	135
Bees.....	0	113	2	4	0	21	3	0	14
Feed and grain.....	4 326	3 484	2 872	2 826	3 017	2 585	2 595	2 274	2 856
Machinery and equipment...	3 119	2 514	2 096	2 080	2 098	2 090	2 210	1 887	2 134
Total.....	60 197	55 331	47 807	48 262	51 684	44 523	48 010	43 004	48 787

There was considerable variation in the source of income for the average of the different groups. The farms with a high proportion of the tillable land in hay and pasture had a higher average percent of income from livestock (Fig. 4). Farms with a low proportion of forage crops had a high percent of receipts from the sale of grain. This indicates further that those farms with more roughage crops tend to produce more livestock. For an individual farm, however, this relation may not always hold, but it is true for the average.

The percent of income from all classes of livestock, except poultry, tended to increase from group to group as the proportion of roughage crops increased (Table 5). That from poultry did not vary consistently among the groups. The proportion of income from the sale of cattle and from the sales of dairy products tended to increase quite rapidly. This relationship also was true for sheep, although receipts from this source were relatively unimportant for most farms. The proportion of the livestock receipts from hogs (Fig. 5) decreased as the amount of roughages increased. The proportion of the livestock receipts from the sale of dairy products increased the most rapidly. The proportion from sheep increased consistently while receipts from the sale of beef cattle remained fairly constant.

TABLE 5.—PERCENT OF INCOME BY SOURCES AS RELATED TO PERCENT OF TILLABLE LAND IN HAY AND PASTURE, 1936

Item	Percent of tillable land in hay and pasture								
	0.0-4.9	5.0-9.9	10.0-14.9	15.0-19.9	20.0-24.9	25.0-29.9	30.0-34.9	35.0 and over	All farms
Horses.....	.2	.2	.6	.5	.5	.3	.5	.4	.5
Total productive livestock.....	(32.2)	(33.7)	(38.5)	(47.5)	(50.8)	(66.1)	(77.3)	(65.6)	(51.6)
Cattle.....	18.2	9.7	11.7	15.1	16.8	17.8	26.0	12.2	15.9
Dairy sales.....	2.4	3.3	4.4	4.8	6.6	10.7	13.0	19.9	7.1
Hogs.....	10.4	17.0	18.5	22.4	22.8	29.9	32.4	24.0	23.4
Sheep.....	.2	.5	.7	1.7	1.7	3.0	3.1	5.4	1.9
Poultry.....	1.0	2.9	3.2	3.5	2.9	4.7	2.8	4.1	3.3
Bees.....	.0	.3	.0	.0	.0	.0	.0	.0	.0
Feed and grain.....	64.4	62.1	56.3	46.8	42.6	27.0	16.5	28.3	42.4
Labor off farm.....	1.2	1.1	1.1	1.4	1.2	2.5	2.0	2.1	1.5
AAA payments.....	1.7	2.7	3.4	3.7	4.8	3.9	3.4	3.5	3.8
Miscellaneous.....	.3	.2	.1	.1	.1	.2	.3	.1	.2
Total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

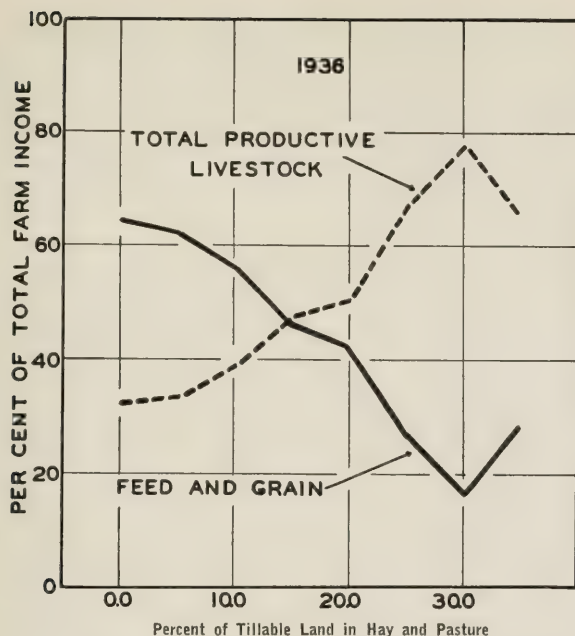


FIG. 4.—PERCENT OF INCOME FROM PRODUCTIVE LIVESTOCK AND FROM FEED GRAIN AS RELATED TO PERCENT OF TILLABLE LAND IN HAY AND PASTURE, 1936

The percent of total farm income from productive livestock increased rapidly and the percent from feed and grain decreased rapidly as the percent of tillable land in hay and pasture increased on these northern Illinois farms.

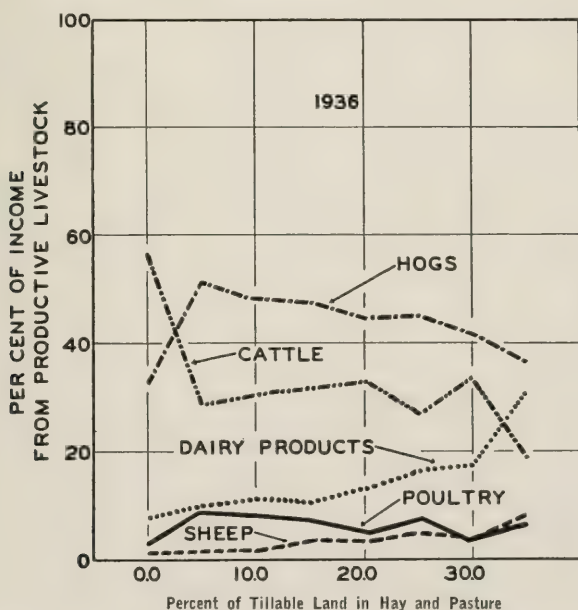


FIG. 5.—INCOME FROM VARIOUS CLASSES OF LIVESTOCK AS PERCENT OF INCOME FROM TOTAL LIVESTOCK AS RELATED TO PERCENT OF TILLABLE LAND IN HAY AND PASTURE, 1936

There was a noticeable tendency for the income from dairy products and sheep to increase as a percentage of the income from productive livestock as the percent of tillable land in hay and pasture increased. The income from hogs tended to decline relatively. The pattern is not clear for cattle and poultry.

One of the current problems confronting the corn-belt farmer is how to make efficient use of the large amounts of roughages produced if a soil maintenance program is followed. The farmer's answer, as shown from the data, appears to be increased livestock production. The solution of the problem, because of individual differences among farms and farmers, remains largely one of individual planning of the farm business by the farmer concerned. Considerable time and thought can profitably be given to the problem of practical planning for an efficient farm business.

L. W. SCHRUBEN

RELATIVE PROFITABLENESS OF CROPS

Corn has consistently held first place as the most profitable field crop in east-central Illinois from 1920 to date, the period when farmers have participated in farm cost studies in that area. But, all of the other important field crops have changed their positions from time to time in the scale of relative profits.

In the early 20's, wheat followed corn in profits an acre, and alfalfa hay was a close third. In the early expansion of acreage in soybeans for grain in the east-central section of the state, the crop was not grown profitably. However, it has gradually increased in profitableness until it emerged, after the depression years of the 30's, in second place, next to corn in profit an acre.

In the 5-year period, 1935-1939, winter wheat gave a larger average profit an acre than did alfalfa hay, but in the 10-year period, 1930-1939, six alfalfa crops netted their growers more profit than did corresponding winter wheat crops. The demand for alfalfa hay in east-central Illinois is usually light. In this cash-grain farming area, not enough livestock is found on farms to make a strong market for hay, and good quality alfalfa does not command the same price premium above other legume hays that it does in areas of the state where more livestock is found. Consequently, alfalfa sometimes is in fourth place rather than in second or third place.

On a dollar and cents basis, oats has consistently shown the least profit of all the grain crops. However, this basis does not give oats any credit for its function as a nurse crop. Soybean hay has also shown a loss nearly every year of the study. But, no money credit was allowed for the fact that cutting borders of soybean fields is as much a method of opening up grain fields for the combine as it is a method of producing hay.

The annual yield of clover hay on farms in Champaign and Piatt counties seldom exceeds a ton an acre. The low yield can largely be attributed to the fact that the crop is often grown on land which is not limed or that the crop is included in the rotation with the intention of plowing under the second crop instead of cutting it for hay. During the 5-year period, 1935-1939, clover hay was grown at a profit on those farms where two tons of hay an acre were obtained (Table 1).

When the choice is made as to how much of each crop to grow, the manner in which the crops fit into a well-balanced rotation and the effect of individual crops on the fertility of the soil should be considered as well as the relative profit of each. Although every crop cannot be the highest profit one, a combination of several crops in a rotation will, in the end, prove most profitable if they are well selected to give good labor and power utilization and, at the same time, maintain soil fertility. In the costs that appear in Table 1, no charge has been made for the fertility removed from the soil by each crop. On the farms in the study, some applications were made of animal and green manure, limestone, and commercial fertilizers; however, these fertilizers were probably not sufficient to replace in full the plant-food elements removed by continual cropping and erosion.

The crop cost figures in Table 1 include interest at 5 percent on a fair value

TABLE 1.—RELATIVE PROFIT PER ACRE OF IMPORTANT FIELD CROPS GROWN
IN CHAMPAIGN AND PIATT COUNTIES, 1935-1939

Crop	Cost per acre	Yield per acre	Farm price ^a	Profit or loss
Corn.....	\$17.37	55 bu.	\$.51	\$10.52
Soybeans.....	15.51	28 bu.	.76	5.85
Wheat.....	14.74	23 bu.	.78	3.15
Alfalfa.....	17.91	2¼ tons	8.60	1.81
Oats.....	12.62	40 bu.	.26	-2.33
Clover hay ^b	12.35	1 ton	8.00	-4.41
Soybean hay.....	19.60	1½ tons	7.20	-6.28
Clover hay ^c	14.62	2 tons	8.00	1.58

^aPrices are to the nearest cent for grain and to the nearest 10 cents for hay.

^bThese figures for clover hay are the average of all the farms in the study.

^cThese figures for clover hay are the average of just the farms on which 2 tons were produced an acre.

of land as a land charge and include all the operating expenses up through the harvesting of the crop. At the time of harvesting, a farm price is applied to the yield an acre, and the profit or loss an acre is determined.

In the 5-year period, 1935-1939, the average cost of growing and harvesting an acre of corn was \$17.37, including the land charge. The average corn yield for these five years was 55 bushels, valued at 51 cents a bushel at harvest time. The average corn yield for the five years ending in 1939 was 10 bushels above that of the preceding 15 years. As a result, the annual profit of corn an acre for the 5-year period was \$10.52, a figure which was well above the profit for the preceding 15 years.

The average cost of growing and harvesting an acre of soybeans was \$15.51, including the land charge, and the value of the 28-bushel crop was \$21.36, or a profit of \$5.85 an acre. The yield of soybeans has been gradually increasing since the crop was introduced in this section of the state. The average soybean yield an acre for the 10 years just preceding the 5-year period shown in Table 1 was 20 bushels. The yields of winter wheat, oats, and hays in the 5-year period were near the long-time levels for those crops.

In the years that soybeans averaged approximately 20 bushels an acre, wheat was a more profitable crop than were soybeans. During the five years for which figures are shown in Table 1, wheat was produced at the cost of \$14.74 an acre. The average yield during the period was 23 bushels, valued at 78 cents a bushel. The average profit of wheat, \$3.15 an acre, placed the crop below soybeans when all the crops are ranked in order of profit.

The low yields of hay crops in east-central Illinois are largely responsible for placing them among the crops of lower profits. The small hay acreage on these farms resulted in the machinery expense of an acre of hay totaling over twice that of an acre of corn or small grain. When cost and income records from those farms that cut approximately two tons of clover hay an acre during the years 1935-1939 were analyzed by themselves, it was found that the clover hay crop made a profit of \$1.58 an acre.

The relative profitableness of crops in Illinois has been found to change from year to year due to unusual conditions affecting yields or market prices. The long-time, more permanent changes in relative profitableness between crops have taken place as the result of a general reduction in operating costs of production, the raising of yield levels for some crops and not for others, or an advantage in the market as new uses are opened up for one crop and not for others. The choice of what crops to grow and how many acres of each to plant should not be governed entirely by the relative profitableness of individual crops, but by the most profitable combination of crops for the individual farm and, at the same time, by the extent to which this combination of crops maintains the soil fertility.

R. H. WILCOX

RECENT SEASONAL AND OTHER SHORT-TIME MOVEMENTS OF POULTRY AND EGG PRICES

This analysis covers the period 1935 to 1939 and is confined largely to a study of seasonal price movements of broilers, turkeys, chickens, and eggs and the relationship of short-time price movements, after seasonal influences are eliminated, to changes in the year-to-year supplies and incomes of industrial workers. The last factor is used as a measure of demand, although it might not be an equally satisfactory measure of demand for broilers, turkeys, chickens, and eggs. Seasonal fluctuations have such a predominant influence on prices of poultry and eggs that it is desirable to determine typical seasonal movements and to make adjustments for them in order to study other short-time movements of these prices. This procedure has been followed. The seasonal movements, using the average for the year as 100 percent, are illustrated in Figure 1. The prices charted in Figures 3, 4, and 5 are actual prices which had been adjusted for typical seasonal variations.

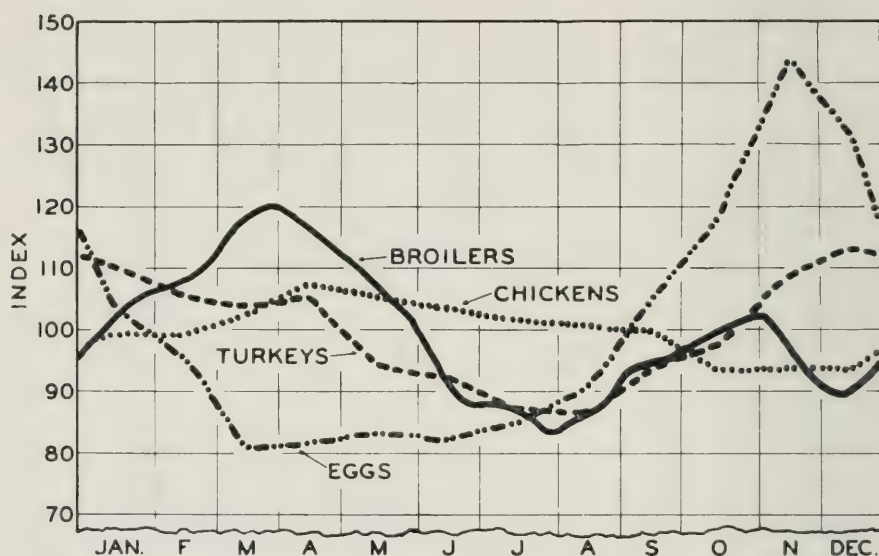


FIG. 1.—SEASONAL MOVEMENTS OF POULTRY AND EGG PRICES, ILLINOIS, 1935-1939

Egg prices have the greatest seasonal variations in this group, followed in order by broilers, turkeys, and chickens. Top prices for broilers occur in late winter; for eggs, in early winter; for turkeys, in midwinter; and for chickens, in the spring.

Broilers. A few years ago Illinois farmers showed considerable interest in growing broilers for the early market in battery brooders and by other intensive methods. At that time broilers brought a high price compared with that brought by other chickens coming to market early in the year. Although the premium for broilers has declined considerably, the price of broilers at certain seasons of the year tends to be considerably higher than it is at other seasons (Fig. 1). The major peak in prices typically comes in late March and early April; the minor peak comes in late October and early November.

The actual Chicago quotations (each Friday) for 1935 to 1939 for broilers are charted in Figure 2. A downward trend and two seasonal peaks are noticeable. After corrections are made which adjust the prices for the influence of

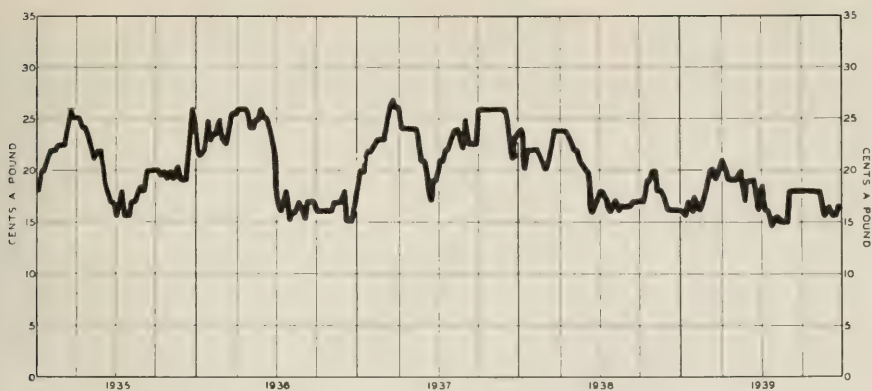


FIG. 2.—BROILER PRICES, CHICAGO, 1935-1939^a

The general trend of broiler prices during this period was downward and was accompanied by a slight tendency for the amplitude of price fluctuations within the year to decrease. In 1936 and 1939, increased quantities of chickens sold tended to offset the influence of improved demand conditions.

seasonal variations, the monthly prices can be charted, along with an index of incomes of industrial workers and numbers of chickens sold in the United States (Fig. 3).

Logically, poultry and egg prices should rise with increasing incomes and decline with decreasing incomes, except as the influence of this change in demand is offset by changes in the opposite direction in supplies offered for sale. Broiler prices, after corrections are made for seasonal variations, do appear to rise and fall as incomes rise and fall, except as changes in demand are offset by changes in supplies. Both prices and incomes rose in 1935 and on into 1936 until the great increase in numbers of chickens sold in late summer and fall of 1936 caused a

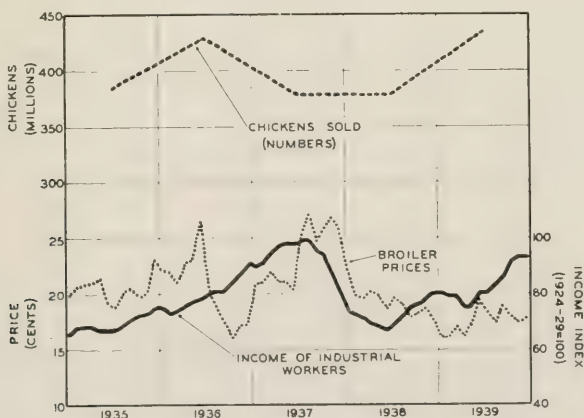


FIG. 3.—ADJUSTED PRICES OF BROILERS AT CHICAGO, CHANGES IN NUMBERS OF CHICKENS MARKETING IN THE UNITED STATES AND IN INCOMES OF INDUSTRIAL WORKERS IN THE UNITED STATES, 1935-1939

After adjustments are made for seasonal variations and for numbers of chickens marketed, broiler prices respond to changes in incomes of industrial workers.

^aFriday quotations. Occasionally no broiler quotations were available, and "Springs under 4 lb." or "Fryers" were substituted. The author is indebted to Mr. R. B. Floyd for the compilation of the data.

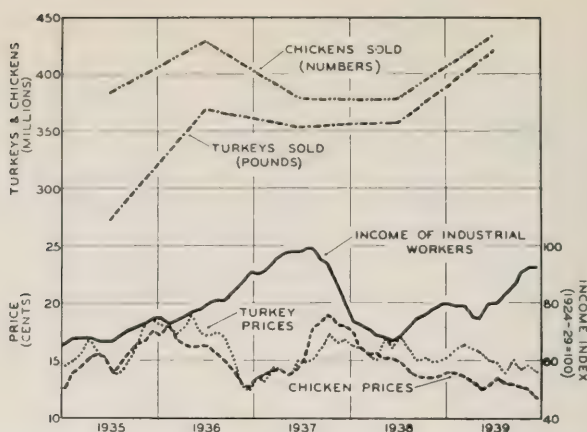


FIG. 4.—ADJUSTED ILLINOIS FARM PRICES OF TURKEYS AND CHICKENS, CHANGES IN NUMBERS OF TURKEYS AND CHICKENS SOLD IN THE UNITED STATES AND IN INCOMES OF INDUSTRIAL WORKERS IN THE UNITED STATES, 1935-1939

Prices of turkeys and chickens respond both to changes in numbers sold and to changes in incomes of industrial workers. The Illinois farm price of turkeys has strengthened in relation to the Illinois farm price of chickens in spite of a greater percentage increase of turkey production in the country.

sharp drop in prices. The correction for changes in supplies was completed within a few months, and prices again rose from the lower level as incomes continued to rise. The other major discrepancy occurred in late 1938 and 1939. The failure of prices of broilers to rise in late 1939 might well be attributed to the great increase in poultry marketings that year. The 1938 situation is not clear. When the numbers to be marketed are taken into consideration, prices are likely to improve during periods of increasing consumer purchasing power, and vice versa.

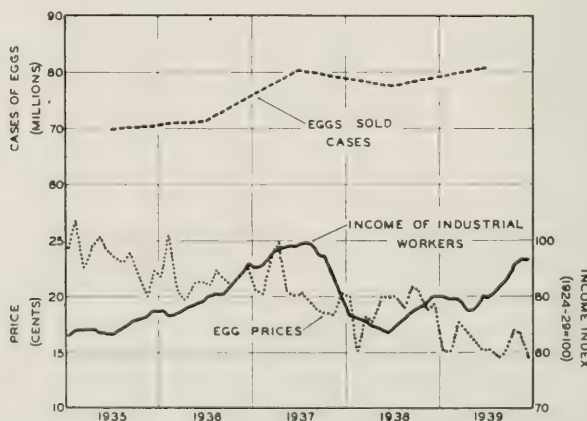


FIG. 5.—ADJUSTED ILLINOIS FARM PRICES OF EGGS, CHANGES IN THE QUANTITY OF EGGS SOLD IN THE UNITED STATES AND IN INCOMES OF INDUSTRIAL WORKERS IN THE UNITED STATES, 1935-1939

The general short-time trend of egg prices has been downward, and the trend of production has been upward during this period.

Turkeys and chickens. The seasonal variations in turkey prices follow more closely those for eggs than those for chickens. The highest prices are obtainable in November, December, and January (Fig. 1). After adjustments are made for seasonal variations, the Illinois farm price of turkeys tends to follow the same pattern as does that of chickens. Fluctuations in production have also followed the same general pattern. The demand for turkeys, however, has increased in relation to the demand for chickens. This increase is indicated in Figure 4 by the tendency of prices of turkeys to rise in relation to prices of chickens in spite of a greater relative rise in sales of turkeys than of chickens. The behavior of the prices of both turkeys and chickens in relation to changes in incomes of industrial workers resembles that of broilers. Except as influenced by changes in supplies, the prices tend to go in the same direction as incomes.

Eggs. Seasonal fluctuations of egg prices are typically much greater on a percentage basis than are seasonal fluctuations of broilers, turkeys, or chickens (Fig. 1). The peak comes in November and December, with a long flat bottom from March to July. After adjustments are made for seasonal variations, egg prices seem to follow a declining short-time trend, doubtless caused by the increase in egg production (Fig. 5). In fact, year-to-year changes in egg prices appear to be more closely associated with changes in supply than with changes in incomes of industrial workers.

G. L. JORDAN

Footnotes for the following page:

¹⁻¹²The first source is for annual data; the second is for current data from which tables may be brought to date.

¹Survey of Current Business, 1936 supplement, U.S. Dept. of Commerce; subsequent monthly issues. ²Same as footnote 1. ³Illinois Crop and Livestock Statistics, Circular 438 (1937); monthly mimeographs of Statistical Tables for Illinois Crop Report, converted from 1910-14 = 100 to 1924-29 = 100 by multiplying by .7151. ⁴Agricultural Situation, Bureau of Agricultural Economics, U.S.D.A.; Agricultural Situation, converted from 1910-14 = 100 to 1924-29 = 100 by multiplying by .6486. ⁵Calculated from data furnished by Bureau of Agricultural Economics; Survey of Current Business, seasonally adjusted. ⁶Calculated by Department of Agricultural Economics, University of Illinois, seasonally adjusted. Data from Farm Income, Bureau of Agricultural Economics; B.A.E. monthly mimeograph. Receipts from sale of Principal Farm Products (government payments not included). ⁷Obtained by dividing Index of Illinois Farm Income (column 6) by Index of Prices Paid by Farmers (column 4). ⁸Monthly Indexes of Non-Agricultural and National Income, Supplement, August, 1937, B.A.E.; Price and Demand Situation, or Agricultural Situation. ⁹Survey of Current Business, 1938 Revision; subsequent monthly issues, unadjusted for seasonal variation. ¹⁰Federal Reserve Bulletin of Federal Reserve Board, September, 1933 and subsequent issues; Survey of Current Business, seasonally adjusted. ¹¹Preliminary estimate. ¹²Illinois Crop and Livestock Statistics, Cir. 438; Monthly price releases, State Agricultural Statistician.

TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural income ⁸	Factory payrolls ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. In money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period.....	1926	1926	1924-29	1924-29	1924-29	1924-29	1924-29	1924-29	1923-25	1935-39
1929.....	95	105	104	99	103	103	104	107	110	110
1930.....	86	88	89	94	83	87	93	100	89	91
1931.....	73	65	62	80	58	58	72	87	68	75
1932.....	65	48	41	69	43	43	62	68	47	58
1933.....	66	51	45	71	49	51	72	63	50	69
1934.....	75	65	61	80	57	55	69	72	64	75
1935.....	80	79	82	81	64	65	80	77	74	87
1936.....	81	81	86	80	74	82	103	90	86	103
1937.....	86	86	96	84	80	87	103	95	102	113
1938.....	79	69	69	80	72	81	101	88	78	88
1939.....	77	65	65	78	72	81	97	93	91	108
1939 Nov.....	79	67	67	79	76	93	117	96	102	124
Dec.....	79	68	66	79	79	99	125	97	104	126
1940 Jan.....	79	69	68	79	79	100	126	97	98	122
Feb.....	79	68	67	79	83	100	126	96	98	116
Mar.....	78	68	66	79	76	98	124	96	98	112
Apr.....	79	69	67	80	82	76	96	95	96	111
May.....	78	68	69	80	80	90	112	96	96	115
June.....	78	66	65	80	70	71	89	97	98	121
July.....	78	66	67	79	71	72	90	98	96	121
Aug.....	77	66	69	79	71	80	101	99	104	121
Sept.....	78	66	72	79	76	84	106	100	110	125
Oct.....	78	66	72	79	80 ¹¹	...	...	...	114	128 ¹¹
Nov.....	79 ¹¹	68 ¹¹	73	79	...	...	...	...	...	131 ¹¹

TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS¹²

Product	Calendar year average			November 1939	Current months		
	1924-29	1938	1939		September	October	November
Corn, bu.....	\$.81	\$.45	\$.43	\$.42	\$.59	\$.58	\$.56
Oats, bu.....	.42	.24	.28	.31	.27	.28	.33
Wheat, bu.....	1.30	.68	.67	.79	.69	.75	.80
Barley, bu.....	.66	.53	.41	.43	.45	.48	.48
Soybeans, bu.....	1.94	.75	.74	.80	.67	.65	.85
Hogs, cwt.....	9.97	8.06	6.56	6.10	6.40	6.00	5.70
Beef cattle, cwt.....	8.57	7.68	8.18	8.40	9.60	9.60	9.80
Lambs, cwt.....	12.22	7.76	8.18	8.20	8.20	8.00	8.40
Milk cows, head.....	78.00	60.00	63.00	62.00	64.00	65.00	65.00
Veal calves, cwt.....	11.27	8.89	9.15	9.50	9.80	9.70	9.80
Sheep, cwt.....	6.52	3.36	3.44	3.40	3.35	3.45	3.45
Butterfat, lb.....	.42	.25	.23	.29	.25	.27	.30
Milk, cwt.....	2.32	1.66	1.59	1.85	1.70	1.75	1.85
Eggs, doz.....	.30	.19	.16	.24	.17	.20	.23
Chickens, lb.....	.21	.15	.13	.12	.14	.13	.13
Wool, lb.....	.36	.21	.25	.31	.29	.31	.33
Apples, bu.....	1.59	.95	1.07	.75	1.00	.90	1.10
Hay, ton.....	13.88	7.65	6.05	6.20	6.80	6.70	6.80
Potatoes, bu.....	1.39	.73	.80	.80	.75	.70	.70

¹⁻¹²For sources of data in tables see previous page.

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EFFECT OF INCREASED ROUGHAGE PRODUCTION ON FARM INCOME

Since 1932, Illinois farmers have been reducing the acreage in corn and increasing the acreage in hay and pasture. Illinois accounting farmers grew 23 percent less corn and 13 percent more hay and pasture in 1939 than in 1932. On all the farms in Illinois, 9.8 million acres of corn were harvested in 1932 but only 7.5 million acres in 1940—a reduction of 24 percent (Table 1).

This shift from grain to roughage production will eventually have its effect on the amounts and kinds of livestock produced in the state. Livestock numbers on Illinois farms have not been abnormally high in the last 7 years due to the drouths of 1934 and 1936, but the numbers of roughage-consuming animals will attain record levels by 1945, when the numbers of beef cattle on farms are expected to reach the peak of the current cycle (Table 2).

Some idea of the adjustments which Illinois farmers will make in livestock production in the future, if they increase the production of hay and pasture, may be secured from a study of those accounting farms where these adjustments have already been made. Farm account records for central Illinois were grouped according to the percent of tillable land in hay and pasture in order to study the effect of the production of roughages on amounts of livestock and on farm incomes, for the years 1931, 1936, and 1937 (Table 3).

The following conclusions were reached from this study:

1. The total digestible nutrients produced per 100 tillable acres were slightly less for farms with less than 10 percent of the tillable land in hay and pasture than for those with over 30 percent. The percentage of total nutrients from grains declined from 93 percent to 66 percent, however, as the percentage of hay and pasture increased from less than 10 to more than 30.

TABLE 1.—PERCENTAGE OF TILLABLE LAND IN CORN AND HAY AND PASTURE ON ILLINOIS ACCOUNTING FARMS AND THE ACREAGE PLANTED TO CORN IN THE UNITED STATES AND ILLINOIS, 1931-1939

Year	Illinois accounting farms			Acreage in corn	
	Number of records	Percentage in corn	Percentage in hay and pasture	United States	Illinois
				(million acres)	
1931	1 538	38.2	26.7	106.9	9.8
1932	1 322	39.5	27.7	110.6	9.8
1933	1 245	36.2	29.3	106.0	8.8
1934	1 490	26.8	36.9	92.4	7.8
1935	1 611	28.0	32.2	95.8	8.3
1936	1 658	34.1	31.0	93.0	9.3
1937	1 847	34.6	27.6	93.7	9.4
1938	2 499	31.5	30.6	92.2	8.6
1939	2 713	30.3	31.2	88.8	8.1
1940				86.4	7.5

TABLE 2.—SIZE OF PIG CROP AND NUMBERS OF CATTLE ON FARMS
IN THE UNITED STATES, 1924-1941

Year	Total pig crop	Numbers of cattle on farms January 1	Year	Total pig crop	Numbers of cattle on farms January 1
	(million head)			(million head)	
1924-33 average.....	78.0	62.4	1938.....	71.1	66.1
1934.....	56.8	74.3	1939.....	85.9	66.8
1935.....	55.1	68.5	1940.....	77.0	68.8
1936.....	64.9	67.9	1941.....	....	70.8
1937.....	61.9	66.8			

2. Crop yields for grain crops were 5 percent larger on the farms with 25 to 30 percent of the tillable land in hay and pasture than for those with less than 10 percent.

3. Over twice as much feed was fed to livestock on the farms with over 30 percent of the tillable land in hay and pasture as on those with less than 10 percent. The increase in the value of feed fed was greater for cattle than for hogs.

4. When no charge was made for the depletion of soil fertility, farm earnings were higher on the farms with less than 10 percent of the tillable land in hay and pasture in each of three years studied (1931, 1936, and 1937) than on those with 30 percent.

Additional information concerning the influence of the type of farm organization on farm earnings was secured from an analysis of farm financial records from Farming-Type Areas 2, 3, 4, and 5 for the 10-year period, 1926-1935 (Table 4). The records were sorted according to the percentage of the gross income from various sources, and they indicated that the return on the capital invested in the business was larger on the grain farms than on the livestock farms for the 10-year period.

When these results are interpreted, the following facts must be kept in mind: (1) the grain farms were on better land than were the livestock farms, as indicated by the higher value of land per acre and the higher percentage of tillable land; (2) the grain farms had a higher percentage of tillable land in corn and a smaller percentage in hay and pasture than did the livestock farms; (3) crop yields were higher on the livestock farms than on the grain farms, even though the land was of a lower grade; (4) no charge was made in the records for fertility or erosion losses, and no credits were allowed for soil improvement (the intensive grain farms had only 16 percent of the tillable land in hay and pasture, but the cattle farms had 31 percent); and (5) expenses per acre were lower on the grain farms than on the livestock farms due to the smaller input of labor and to less expense for power and machinery and improvements. The higher crop yields on the livestock farms did not offset the lower expenses on the grain farms.

Some of the reasons why the grain farms show higher earnings than do the livestock farms follow:

1. The records were secured from those areas in Illinois where a great deal of the land is relatively level and where crop yields have been maintained at a fairly high level with a minimum use of hay and pasture. The difference in yields between the farms with high percentages of hay and pasture and those with low ones was only 5 percent (Table 3).

2. The use of general-purpose tractors and motor-operated equipment has enabled farmers to reduce the cost of producing crops more than the cost of producing livestock, and this change has favored the grain farms. The labor input per acre of corn has been cut in half, but the labor input per unit of livestock produced has declined but little.

TABLE 3.—EFFECT OF VARIATIONS IN LAND USE ON FEED PRODUCTION AND FARM INCOME, CENTRAL ILLINOIS, AVERAGES FOR 1931, 1936, AND 1937

Item	Percent of tillable land in hay and pasture					
	0-9.9	10-14.9	15-19.9	20-24.9	25-29.9	30 and over
Number of records.....	113	186	311	266	187	147
Value of feed per 100 acres.....	\$865	\$944	\$1 268	\$1 296	\$1 745	\$1 855
Crop-yield index.....	98	97	101	100	103	101
Digestible nutrients per 100 tillable acres (thousands of pounds)						
Grain.....	159	149	145	135	133	118
Hay and pasture.....	8	16	25	33	37	51
Total.....	167	165	170	168	170	169
Labor used per 100 tillable acres.....	\$365	\$409	\$464	\$446	\$555	\$537
Rate earned on investment (percent) ..	7.5	6.5	6.1	5.3	5.6	4.8

3. The cost of controlling livestock diseases has probably increased during the past 15 years.

4. The introduction of hybrid corn increased yields of corn and decreased the cost of production of corn. No comparable advance has been made in the efficiency of producing livestock or livestock products.

5. Since 1929, corn-belt farmers have lost an export market for the lard from 15 million hogs, and this loss has depressed hog prices.

6. Since 1934, loan programs for corn and wheat have caused an advance in the prices of these grains. This advance, in turn, has resulted in higher earnings on grain farms than on livestock farms.

These facts lead to the conclusion that two conflicting forces will influence the amount of livestock raised on the farms in the United States during the years which lie immediately ahead: (1) The increased use of machinery will favor the grain farms and tend to hold down the amount of livestock produced; and (2) the desire of many farmers to grow more grasses and legumes, to control erosion, and to maintain fertility will cause an increased production of livestock and will, thereby, offset the influence of increased mechanization. Many farmers will grow more legumes and grasses than they grew in 1932, even though AAA payments are discontinued. The farmers will grow more legumes because they know that legumes are necessary to maintain a high level of crop yields.

Farmers on relatively level land may choose to produce livestock, or they may maintain their crop yields by plowing under deep-rooted legumes, such as sweet clover. On relatively level farms that are large enough to provide an adequate volume of business, a 5-year rotation of corn, soybeans, sweet clover (seeded alone), corn, and oats (sweet-clover catch crop) or a 3-year rotation of corn, soybeans, and sweet clover (seeded alone) will provide (1) a large percentage of high profit crops, (2) enough legumes to maintain high crop yields, (3) low operating costs, and (4) a relatively high return on the investment. This type of organization is designed for those farmers who are relatively inefficient in livestock production or who lack the equipment for livestock production. For the 10-year period, the grain farms, on the average, had \$4,212 invested in improvements and the cattle farms, \$6,729 (Table 4).

On the more rolling farms, livestock production had a decided advantage since a high percentage of legumes and grasses must be grown to control erosion and since it is often desirable to have sod crops on the land for two or more successive years. On farms of this type, the efficient livestock producer will make a good return, but the inefficient producer will have a low return. The level farms offer an opportunity for the inefficient livestock man to make a good

TABLE 4.—RECORDS FOR FARMS GROUPED ACCORDING TO SOURCE OF INCOME, NORTHERN TWO-THIRDS OF ILLINOIS, EXCLUSIVE OF THE CHICAGO DAIRY AREA, AVERAGES, 1926-1935

Item	Grain 60% +	Grain 40-59%	Hogs 40% +	Cattle 40% +	Dairy sales 40% +	All less than 40%
Number of records.....	2 430	2 300	4 670	850	1 200	2 500
Acres per farm.....	267	236	219	277	178	212
Percent of land area tillable.....	91	88	83	84	80	82
Value of land per acre.....	\$139	\$131	\$126	\$132	\$118	\$120
Percent of tillable land in corn.....	42	40	39	39	33	38
Percent of tillable land in hay and pasture.....	16	22	28	31	36	29
Feed per acre to prod. livestock.....	\$ 3.31	\$ 5.38	\$ 11.36	\$ 14.67	\$ 10.22	\$ 8.09
Returns per \$100 feed.....	128	139	133	133	159	140
Months of labor per 100 tillable acres.....	9.0	10.4	11.9	10.9	15.4	12.1
Gross receipts an acre.....	\$ 16.78	\$ 16.60	\$ 17.16	\$ 21.26	\$ 18.86	\$ 15.94
Expenses an acre.....	9.74	10.28	12.14	14.42	13.95	10.79
Net income an acre.....	7.04	6.32	5.02	6.84	4.91	5.15
Investment per farm, total....	\$47 335	\$41 211	\$38 895	\$53 893	\$31 711	\$35 502
Investment in improvements....	4 212	4 292	4 786	6 729	4 789	4 277
Rate earned on investment....	4.0%	3.6%	2.8%	3.5%	2.8%	3.1%

return with a grain system. If the grain farms of the corn belt are all converted into livestock farms, the price for livestock and livestock products will be unduly depressed.

Farm account records indicate that the "returns per \$100 of feed fed to productive livestock" is a measure which indicates rather clearly the efficiency of the individual livestock producer. If, over a period of years, this return is less than is the average for other cooperators with similar livestock enterprises, the individual producer may well consider reducing the amount of livestock that he produces or using practices which will increase the efficiency of his livestock enterprises.

The wide variation from farm to farm in the amount of feed used to produce 100 pounds of pork or 100 pounds of beef indicates clearly the opportunity which many farmers have to increase their net farm incomes by increasing the efficiency with which livestock and livestock products are produced. Farm accounts indicate that many farmers have maintained their incomes at a high level by increasing the amount of their tillable land in hay and pasture to more than 25 percent and by using livestock to convert this roughage into meat and milk. The records also indicate that, at the average level of livestock efficiency for the past 14 years, the grain farmers on good-quality land have had higher incomes than have the livestock farmers on similar land. Since many farmers should grow more legumes, the natural conclusion is that they should plow more of them under for soil improvement or should adopt the practices which have been used by farmers who are getting high returns from their livestock farms.

Each farm presents a different problem, and each must have a solution which is adapted to the land and to the farmer if optimum incomes are to be secured and if the farm's level of productivity is to be maintained.

The two most important problems that now confront Illinois farmers are: (1) working out a cropping system which will maintain or increase crop yields and control erosion, and (2) marketing legumes and grasses through livestock or plowing them under so that the maximum net farm income will be secured.

P. E. JOHNSTON

PLANNING THE INVESTMENT AND CREDIT PROGRAM FOR THE FAMILY

Much less scientific study has been given to this subject than to questions of farm and family income and expense. Therefore, general principles will be discussed rather than accomplished research. The topic has two sides, investment and credit, and each will be discussed separately.

Savings must precede investments. Before families can consider the problem of investments, they must first have something to invest, either as the result of inheritance or savings. Savings arise from income in excess of necessary business (farm) or family expense. All studies of farm income reveal wide differences in incomes among farmers, depending on variations in material resources, personal factors, such as health and the efficiency with which material resources and available labor are used. Hence, there are wide variations in the opportunities open to individual families to save. All studies of the use of income show that farm families begin to save substantial proportions of their income at lower income levels than do nonfarm families. Probable reasons for this are: (1) on the farm, savings take place as a part of the process of accumulating the capital needed in farming, and (2) there is less social and business pressure to increase personal expenditures with increased incomes in farm communities than among town and city people.

It is probably unwise for farm families with very low incomes to attempt to save any significant amounts. They can use their meager incomes to better advantage by providing better nourishment, shelter, and clothing than in attempting to build up capital for the future.

Ways to invest savings. Savings of farm families may be invested for three purposes: (1) to improve the security of the family, (2) to build up the farm and home capital to provide a business of adequate size and a home of adequate comfort, and (3) as a pure investment, that is, something not directly related to the farm and the home. Although most of the savings of farm families are probably used in the first two ways, there are some families who are seeking outside investments.

It is impossible, of course, to draw a sharp line between the first two classifications. Building up a farm business of adequate size is also a means of creating greater economic security. Life insurance, however, represents a specialized form of investing saving to increase economic security. A recent survey made by the Bureau of Home Economics in sample areas in the Middle-Atlantic and North-Central States indicates that 40.8 percent of the farm families had life insurance.¹ Using savings for insurance limits accumulation of farm capital. The question is one of balance: A wise investment policy calls for some insurance, but when capital is needed to build a business, the amount of insurance must be kept down. Tenant farmers, particularly those in the medium- and high-income groups on good land, can well have considerable insurance because they are not accumulating an estate in the form of land.

Many farm families can wisely invest a substantial part of their savings by increasing their farm capital in order to build up a farm business of adequate size. One problem which often arises is that of purchasing a farm. The ownership of a farm increases job security but it entails risks when financed largely with borrowed money. It may also limit the accumulation of the working capital of the operator in ways which prevent him from operating the farm in a profitable manner.

The question often arises whether savings should be used to increase farm working capital or to improve living conditions. The wise policy is to maintain a balance and to keep both in mind when decisions are made. Postponing im-

¹*Agricultural Finance Review*, Bureau of Agricultural Economics, United States Department of Agriculture, Volume 3, No. 2, page 25.

provements which make farm life more comfortable until they can be made at low cost or until everything else is paid for may mean that the improvements are never made.

Credit is a means of increasing resources. The function of credit is to increase the resources of the borrower beyond those that can be acquired by use of an individual's own accumulated capital. Wisely used, it is a valuable aid to building up increased earnings or providing more comfortable living; improperly used, it can constitute a terrible burden. Credit should be used only to finance enterprises that are understood by the borrower; its amount should be kept in proper relation to the probable income and in correct ratio to accumulated capital; and it should be paid back according to a definite plan. In using credit for working capital, the cyclical changes should be studied, and in use of credit for long-term investments, long-time trends should be taken into consideration.

Use of the increased incomes resulting from present economic developments. Farm incomes may be expected to increase during the years when large expenditures are made for defense and possibly for war. What use should be made of this increase? Any suggested priority for such use will vary according to individual circumstances, but the following way is suggested:

(1) For needed and essential improvements to make a farm productive, such as limestone or phosphate fertilizers.

(2) For payments on debts, in cases where they are excessive.

(3) For things needed for better living or for operating the farm more advantageously.

(4) For further payment of debts.

Obviously, these things may overlap, and increases may actually be made in all of these more or less simultaneously.

Land prices. Higher incomes will naturally cause the price of land to rise. Reports are coming in that quite a few farms are now being bought on rather small down payments. There are many good reasons why different individuals should buy a farm, but the special hazards attached to such purchases, when made with small down payments, particularly in periods of price uncertainty, should be recognized. If a temporary increase in income is capitalized into land values, it will be a serious mistake. Assuming that on a particular farm, earnings will total \$1500 more because of war-time prices in the next three years and then decline to the prewar level, how much more is the farm worth? Obviously, it is something less than \$1500, for this is the total increase in income that may be anticipated. If this annual increase of \$500 per year is capitalized at 5 percent, it would increase the value of the farm by \$10,000. Obviously, paying \$10,000 for the chance to collect \$1500 would be a poor investment for anyone, but this illustration shows exactly what will happen if temporary incomes are capitalized into land prices on the assumption that they will be permanent.

It is better for the individual to reduce his debts than to spread out his capital in a thin equity in land with the economic outlook as uncertain as it is at present. "Things unknown are highly uncertain," is an old adage which clearly applies to the present.

L. J. NORTON

QUALITY REQUIREMENTS OF MILK IN RELATION TO CONSUMPTION

Recent studies have shown that diets of most of the low-income families and many of the medium-income families are inadequate.¹ These studies have also shown that these diets can be improved most economically by increasing the consumption of milk.

¹United States Department of Agriculture Circular 507, pp. 96-101.

What effect do quality requirements of milk have upon the consumption?¹ Are any of the ordinance requirements now in effect in cities unnecessary for the acquisition of high-quality milk? If so, how may an ordinance be put into effect which combines the minimum cost of enforcement with the assurance of high-quality milk to consumers?

Public health regulations of milk in New York City and in Chicago were initiated primarily to insure a safe supply of milk. These measures have increased the safety of the supply because the number of deaths due to milk-borne diseases has shown a drastic reduction. In New York City, infant mortality per 10,000 children under 5 years of age due to diarrheal diseases decreased from an average of 132 for the years 1905-1910 to an average of only 34 for the years 1920-1925 and an average of only 10 for the past 5 years. In Chicago, infant mortality during these years decreased in about this same ratio. From 1905 to 1925, the proportion of the milk supply that was pasteurized increased, and this factor was important in lowering the death rate from these diseases. Other factors contributing to this decrease were: (1) reduction in the number of women working in factories; (2) removal of the worst slum districts; (3) spread of information concerning diets and infant nutrition; and (4) increased knowledge of the control and prevention of infant diseases.

An improvement in the quality of milk in New York City made possible an increase in the consumption of milk. Three major factors influencing the marked rise in the per capita consumption in New York City from 1904 to 1930 were: (1) improvement in the quality of the milk supply; (2) favorable publicity following the removal of the unsanitary distillery dairies; and (3) a favorable price situation. High-quality milk, combined with favorable publicity, tended to remove the fearful and hostile attitude which had existed in the minds of consumers and paved the way for a higher consumption of milk as a result of low prices.

The daily per capita consumption of milk in New York City declined from .576 pint in 1885 to .520 pint in 1904. This reduction can be attributed primarily to the unfavorable publicity given the unsanitary distillery dairies in the city during this period. The daily per capita consumption of milk in St. Louis declined from .42 pint in 1934 to .38 pint in 1938. This reduction can also be attributed primarily to the unfavorable publicity in the summer of 1934 concerning the city's milk supply. Later, after the milk supply had been improved and favorable publicity had been given to the improvements, the consumption in both New York City and St. Louis increased.

Several studies at the University of Illinois show that a decrease in the price of milk causes the consumption to increase but that an increase in the price of milk causes the consumption to decrease.² These studies also show that, in several markets, high retail wagon prices have brought about an increase in store sales of milk and a subsequent decrease in wagon sales of milk.

The daily per capita consumption of milk in New York City in 1939 was .75 pint but that in Chicago was only .59 pint. The primary reason for this difference can be attributed to low store prices in New York City as compared with those in Chicago. For the past 15 years, milk has been available at stores in New York City at prices which are 2 to 5 cents per quart below the home-delivered prices; whereas, up to 1931 in Chicago, home-delivered prices and store prices were the same.

Although the quality of milk in these two cities has been practically identical, high quality can form only a foundation for an increase in the consumption; however, it is a necessary foundation.

Public health regulations which are not necessary for assuring consumers of

¹As used in this discussion, quality refers to milk that is clean, safe, and free from adulteration, and that has a good flavor and a low bacterial count.

²*Illinois Farm Economics*, August, 1940, pp. 384-387.

TABLE 1.—HOME-DELIVERED AND STORE PRICES OF MILK IN CHICAGO
AND IN NEW YORK CITY, 1925-1940^a

Year	Chicago			New York		
	Home-delivered price	Store price	Net difference	Home-delivered price	Store price	Net difference
	(cents per quart)					
1925.....	14.0	14.0	...	14.8	10.1	4.7
1926.....	14.0	14.0	...	15.0	10.0	5.0
1927.....	14.0	14.0	...	15.3	11.7	3.6
1928.....	14.0	14.0	...	15.6	10.6	5.0
1929.....	14.0	14.0	...	16.0	11.0	5.0
1930.....	13.9	13.9	...	15.8	10.7	5.0
1931.....	13.0	12.6	.4	14.7	10.4	4.3
1932.....	11.3	10.9	.4	11.9	8.9	3.0
1933.....	9.8	9.8	...	11.1	9.1	2.0
1934.....	9.5	8.0	1.5	12.6	10.5	2.1
1935.....	10.6	9.9	.7	13.0	11.0	2.0
1936.....	11.4	10.4	1.0	13.1	11.0	2.1
1937.....	12.5	11.5	1.0	12.6	9.7	2.9
1938.....	12.4	10.9	1.5	13.1	9.4	3.7
1939.....	11.7	9.5	2.2	13.6	11.1	2.5
1940 ^b	13.0	8.5	4.5	14.8	11.0	3.8

^a*Illinois Farm Economics*, July, 1940, p. 375.

^bData from January to June.

high-quality milk result in higher costs of production and enforcement which, in turn, may result in higher prices and lower per capita consumption. The increased cost of producing milk due to requirements for quality and even production is illustrated by a comparison of milk prices before ordinance requirements became general and since that time.

Thus, the price received in the Chicago milkshed from 1907-1919 by both market-milk producers and condensery producers averaged \$1.82 per 100 pounds. During this period, there was practically no difference in sanitary requirements and no difference in the average price paid the two groups of producers. From 1934 to 1939, Chicago market-milk producers received an average premium which was 37 cents more per 100 pounds than was that received by condensery producers in this area. In 1939, the premium for the market-milk producers averaged 31 cents per 100 pounds. For the most part, these premiums represent extra cost for producing milk to meet sanitary requirements and costs for producing milk uniformly to meet the day-to-day needs of consumers.

A similar situation has existed in St. Louis, except that the enforcement of sanitary requirements in this market was not begun until over a decade after enforcement was started in Chicago. From 1909 to 1933, the price paid to the St. Louis market-milk producers (country plant zone) averaged \$1.86 per 100 pounds as compared with \$1.89 per 100 pounds received by condensery producers. In contrast, from 1934 to 1939, these same market-milk producers received a premium which was 29 cents more per 100 pounds than was that received by condensery producers. In 1939, the premium for the market-milk producers averaged 38 cents per 100 pounds. Extra costs for producing milk to meet sanitary requirements in St. Louis undoubtedly were an important factor necessitating premiums for market milk during this latter period.

Costs for enforcing milk ordinances vary widely. The enforcement costs in New York City, where major attention is given to platform inspection, is slightly under $\frac{1}{2}$ cent per 100 pounds of milk; whereas, the enforcement costs in St. Louis, where frequent farm inspections are required, is 4 cents per 100 pounds of milk. In 1936 the enforcement cost in Rockford, where special emphasis is given to platform inspection, was 3.8 cents per capita as compared with 7.8 cents per capita, the average cost of 74 cities which enforce the Standard Milk Ordinance

and emphasize frequent farm inspections. If ordinances now in effect include some requirements which are not necessary for the production of high-quality milk, such requirements should be eliminated, if costs are to be lowered and the consumption of milk is to be increased. Based upon his studies, Dr. J. D. Brew has listed 37 requirements which are commonly included in milk ordinances and which, he feels, are unnecessary for obtaining high-quality milk.¹ Other studies have confirmed the conclusions reached by Dr. Brew.²

In view of the conclusions reached by these studies, requirements which combine the minimum cost of production and enforcement with the assurance of high-quality milk to consumers are few and simple. Briefly, these requirements are: (1) cows to be free from disease; (2) dairy barns to be well-lighted and properly ventilated; (3) milk to be handled in a separate room or a milkhouse; (4) minimum methylene-blue reduction time for raw milk to be 5½ hours; (5) sediment test to conform to Connecticut Standards; (6) employees handling milk to be free from disease.

A careful analysis of these essentials indicates that most of them can be adequately enforced through frequent platform inspections of milk, the method used for enforcing quality requirements in New York City and in Rockford.

K. D. NADEN

TENANTS' PROBLEMS POINT TO NEED FOR LEASE IMPROVEMENT

Illinois tenants are confronted by many problems which could be alleviated, at least in part, by the adoption of better leases. In a recent survey made by the University of Illinois in cooperation with the United States Department of Agriculture, tenants were asked to express their personal views and to present their tenancy problems with suggestions for improvement. No request was made for opinions on any special topic. Thus, the comments received give an excellent cross-section of tenants' opinions and show the problems which are foremost in their minds. Nearly 600 tenants made over 1,000 specific comments dealing with tenancy problems. Although nearly forty different types of comments were made, most of them could be classified as dealing with five major tenancy problems for which some measure of improvement can be secured by the use of improved lease forms.

Need for better buildings and fences. More tenants discussed this topic than any other one. Many of them expressed the opinion that landlords, in general, were neglecting buildings and fences to the detriment of their own and their tenants' best interests. The first means of improving this situation would be for the landlord to make the necessary improvements. This plan may often be advantageous to the landlord in the long run because he would be able to secure better tenants, and more livestock could be kept on the farm, thus better maintaining soil fertility. If the landlord is not financially able or is not willing to make the necessary improvements himself, a clause in the lease assuring the tenant compensation for the unused value of improvements that he had made on the farm would help remedy the situation. The tenant would feel that he could make those improvements which would be of greatest value to him, and on leaving he would be given credit for their value to the new incoming tenant.

¹Brew, J. D., *The Health Official's Responsibility in Aiding Dairymen to Control Production Costs, The Seventh Annual Report of the New York State Association of Dairy and Milk Inspectors*, 1933, p. 193. See also New York Agricultural Experiment Station Bulletin 398, 1915, written by the same author.

²North, C. E., *A Survey of Dairy Score Cards*, *American Journal of Public Health*, 7:25, 1917; Tiedeman, W. D., *The Role of Platform Tests and Farm Inspections in Milk Control*, paper read at twenty-sixth annual meeting of the International Association of Milk Sanitarians, October, 1937; Gunderson, N. O., *How Can the Local Health Officer Assist in Safeguarding a Milk Supply*, paper read at University of Illinois Dairy Manufacturer's Short Course, April 19, 1932; Shaw, Wilfred, *Necessary and Practical Requirements in Sanitary Milk Production*, paper delivered before the American Public Health Association, Western Branch, June, 1940.

Need for greater security. The farmers making comments in this survey felt that the problem next in importance was the need for leases which would provide greater security than is provided by the one-year lease under which most tenants in Illinois now operate. Such means of improvement as long-term leases and a longer notice period for the termination of the lease were frequently discussed. Even though tenants in Illinois do not move as frequently as they do in many other states, the problem of security has become of increased importance as a result of a number of factors associated with a dynamic, commercialized agriculture. Frequent transfers of farms as a result of mortgage foreclosures and speculative buying, uncertainties arising out of the tendency for property to be held for long periods as estates, and the more recent trend toward consolidation of farms due to increased mechanization have played no small part in making security a much-discussed topic.

Although insecurity can never be completely eliminated so long as we have tenancy, a number of means are available which will aid in bringing about a greater degree of security. When both landlords and tenants come to realize that farm property can be safely leased for periods of three or five years after the two parties find by a trial period that they can work together satisfactorily, an important step will be made toward greater stability and security for those tenants. Landlords would also gain from greater stability by larger long-time earnings from their property, and their original investment would tend to be more secure. Thus, both landlords and tenants have a common interest in a more stable tenancy system. Landlords and tenants who do not wish to make commitments for a period as long as this can use the automatic continuation clause to advantage. This feature assures the tenant that the lease will continue in effect unless he receives or gives notice to the contrary a given period in advance of the usual renting date. In Illinois it is desirable to give notice at least 6 months in advance.

Need for better landlord cooperation in soil maintenance. Third in importance, according to 127 of the 600 farmers returning comments, was the need for better landlord cooperation in soil maintenance and improvement. Approximately half the tenants who discussed this problem felt that the landlord should furnish limestone and rock phosphate more frequently. The others suggested a number of ways in which the landlord could cooperate with the tenant in various soil-conserving practices. Several tenants suggested that landlords were often requiring that too high a proportion of their land be planted in cash crops and were not providing sufficient grass seed for good farming practice. Others pointed out that better buildings would promote more livestock, with the resulting improvement in soil fertility. A considerable number of tenants in the livestock area of the state suggested that the use of a livestock-share lease would provide an excellent opportunity for maintaining the productivity of the farm. A provision to compensate the tenant for the unused portion of the limestone and rock phosphate which he purchased and applied on the farm would permit the tenant to make soil improvements to the mutual advantage of both parties.

Need for larger contributions by landlords to operating expenses. The fourth group of comments dealt with the equitability of the present lease, with special reference to the contributions made by the landlords to operating expenses. Many tenants felt that the landlord should furnish half the seed and should pay half the threshing and combining bill. A high proportion of these comments came from farmers in the cash-grain area of the state, where the introduction of hybrid-seed corn and new methods of harvesting have tended to change the relative financial contribution of the parties to the extent that leasing arrangements typical of past decades are less applicable at present. On the better farms with higher yields tenants can logically bear more of the operating expenses than can tenants on the poorer farms, if both rent for one-half share. However,

practices with respect to sharing operating expenses such as seed and harvesting and hauling grain to market are extremely varied at present, and, as conditions vary from farm to farm, no general rule can be laid down. A total of 176 comments dealing with these problems is ample proof of the importance which tenants attach to the proper division of operating expenses.

Need for control of expanding operating units. The comments ranking fifth in importance appear to have sprung largely from the recent trend toward the consolidation of farms and large-scale tractor farming. Sixty-four tenants expressed the opinion that large-scale renting by tenants was undesirable because it deprived many other tenants of farms, forcing them out of farming and frequently on public relief. Many went so far as to suggest that definite restrictions should be made as to the amount of land that one farmer could operate, the acreage, for example, to be determined by the amount of family labor available. A number of tenants made a specific point of condemning the operation of large tracts of land with hired labor. Although this practice has grown in importance in recent years, it is not as extensive in Illinois as in some other states.

Concurrent with these views were those suggesting restrictions on the amount of land that one individual might own. A total of 40 comments were made to this effect, with most coming from east-central Illinois. Other studies show that at least 175 individuals in this area own, on the average, 1,700 acres each of rented land. Thus, although many large holdings do exist, it is not possible to say just what their effect upon tenancy has been. Many owners of large farms have been progressive in lease improvement, soil building, and maintenance, but others have made less outstanding landlords. Just what can or should be done about the existence of large holdings is not clear.

The remaining comments covered a wide range of tenancy problems, many of which expressed personal problems rather than those characteristic of the state as a whole. A number of tenants felt that factors beyond the individual's control were responsible for unsatisfactory conditions, often considering better prices for agricultural products as the best solution. Many miscellaneous comments were directed toward the landlord. Some tenants wanted the landlord to take more interest in the farm; others claimed that the landlord was encouraging soil depletion by too great an emphasis upon current returns; and some had only praise for their landlords. A number of farmers discussed their prospects and hope of attaining ownership; a number had just recently become owners; and others could see no hope of ownership in the future. The difficulties of accumulating enough capital as a tenant to make a satisfactory down payment were frequently pointed out.

The fact that not all parts of the state have the same problems is brought out when the nature and frequency of these comments are analyzed by areas. The greatest concern of tenant farmers in the Chicago dairy area, where cash leasing prevails, was for better prices and longer-term leases. In the livestock area west of the Illinois river, a desire for more contributions by the landlord to operating expenses was mentioned most frequently; however, longer leases and better buildings and improvements were also considered important. In the cash-grain area, a desire for longer leases was the most frequent comment; landlord contributions to operating expenses also received attention; and comments unfavorable to large-scale farming and consolidation of farms were prevalent. In the general farming area in west-central Illinois, the greatest concern of tenants appeared to be in connection with buildings and fences, attributable in part to the necessity for livestock in this area.

The entire southern third of the state was considered one area in this analysis and differed from other areas in the nature and frequency of comments. Tenants expressed the need for better buildings and fences and for soil improvement more

TABLE 1.—NATURE AND RANK OF MOST FREQUENT COMMENTS MADE VOLUNTARILY BY TENANTS RETURNING MAIL QUESTIONNAIRES, ILLINOIS TYPES-OF-TENANCY STUDY, 593 TENANTS REPORTING

Number of times comment was made	Rank	Nature of comment
90	1	Lease should be for a period longer than 1 year.
89	2	Landlord should keep buildings in better repair.
65	3	Landlord should furnish part of seed.
64	4a	Landlord should furnish limestone and/or rock phosphate.
64	4b	Landlord should provide better fences or should be willing to supply tenant with necessary material for their construction.
64	4c	It is not to the best interests of the community for individual tenants to rent excessively large tracts of land.
63	5	Landlord should cooperate better with tenant in building up the soil.
59	6	Tenant should be given a longer notice period for the termination of his lease.
57	7	Landlord should pay part of the combining bill.
54	8	Landlord should pay part of the threshing bill.
38	9	Consolidation of farms due to mechanization has seriously reduced the supply of farms and has increased the difficulties of obtaining farms.
28	10	Hopes for ownership are slight because of low prices and the difficulties of accumulating enough capital for down payments.
27	11	Landlord has been cooperative in every way, and all their relationships have been of the best.
24	12	Some restriction should be made in the amount of land that one person is permitted to own.
23	13	Landlord does not cooperate with tenant.
21	14	Cash rent is too high.
20	15a	Some adjustment should be made in the cash rent for AAA acreage reserved for soil-conserving crops. Full price should not be paid.
20	15b	Hay and/or pasture rent is too high.
20	15c	The key to the whole agricultural problem is better prices.
17	16	Livestock-share lease works fine and is fair to both parties.
16	17a	Landlord is encouraging exploitative farming by too great a concern for current income.
16	17b	Tenant is in a weak position because a few large landowners are buying more and more of the land.
15	18	Tenant should be compensated for the unused portion of improvements which he furnishes and which remain on the farm when he leaves.
14	19	Tenant considers that the farm is in a better condition than when he came there due to his building up the soil and/or buildings.
13	20a	Tenant would prefer a crop-share lease to the one used at present.
13	20b	Tenant operates farm as if it were his own with little supervision or direction by his landlord.
10	21a	Share of crop paid as rent is too high considering yields.
10	21b	Businessmen, lawyers, widows, etc. make poor landlords.
10	21c	It is a bad thing for the community for large tracts of land to be operated by hired labor.
7	22	AAA program is not fair to the tenant.
6	23a	Tenant would prefer livestock-share lease to his present one.
6	23b	Livestock-share lease is not fair to tenant.
6	23c	Pasture rents should be based upon the amount of livestock pastured.
1 049		TOTAL (Excluding 29 miscellaneous comments covering 7 topics not listed above)

TABLE 2.—THE TEN LEADING COMMENTS IN THE MAJOR TYPE-OF-FARMING AREAS, AND THEIR RANK IN THE STATE AS A WHOLE

Rank of comment in state as a whole^a

Rank in area	Cash lease area	Mixed lease area	Cash grain crop-share area	Mixed farming	Southern Illinois
1	15c	7	1	4b	2
2	1	1	7	2	5
3	5	2	3	5	4a
4	13	4c	4c	6	4b
5	2	4a	6	3	10
6	3	3	2	4a	1
7	4	4b	4b	*	13
8	*	14	9	*	*
9	*	6	5	*	*
10	*	16	4a	*	*

^aRefer to Table 1 for nature of comment.

*Less than 10 tenants making the same comment.

frequently in this area than in any other area of the state. Other data show that these problems are especially serious in this area and improvement is hampered by the generally weak financial condition of landlords as well as tenants. Another contrast with the northern two-thirds of the state was the small amount of

interest expressed in longer leases. This condition appears to be consistent with the higher mobility of tenants in this part of the state.

This analysis of the type and frequency of problems expressed by tenants themselves is especially significant because all the comments were made voluntarily. Thus a more representative picture is given than if a direct request for opinions on certain points had been made. The general agreement of tenants as to what their specific problems are is an important step toward improvement and should serve as a useful guide to tenancy improvement work in the future.

W. H. SCOFIELD

PRICE PROSPECTS FOR SOYBEANS AND SOYBEAN PRODUCTS AS INDICATED BY PAST RELATIONSHIPS

An unusually large number of factors must be taken into consideration in forecasting the price of soybeans. The price of soybeans, now that the crop has been harvested, depends upon the prices that can be obtained for the meal and the oil and upon the processors' margin. Soybean meal is used largely as a protein supplement in feeding livestock. As such, it has numerous competitors, the most important of which is cottonseed meal. However, numerous other oilseed cakes and meals, tankage, wheat-milling byproducts, and even corn, hay, and pasture are, to a greater or lesser extent, competitive with soybean meal. At the present time, soybean oil is used largely in the manufacture of lard substitutes and other edible products. Here, soybean oil competes directly with cottonseed oil, peanut oil, corn oil, and lard, and, to a lesser extent, with coconut oil, marine animal fats and oils, and butter.

The price of any product is related directly to the quantity of the commodity and its competitors in relation to the demand. Therefore, when we consider the supply side in trying to analyze the price of soybean meal, we have to consider the supply of all the substitutes as well. In the case of soybean meal, we must consider particularly the supply of cottonseed meal; and, in the case of soybean oil, we must consider especially the supply of cottonseed oil. On the demand side of the picture, we are primarily interested in the farmers' willingness to buy soybean meal and similar protein supplements for feeding livestock. In this connection, we are interested in the numbers of livestock to be fed; in connection with soybean meal, we place considerable emphasis on the number of cattle to be fed and the intensity with which this feeding will be done. The intensity will depend upon the prices of livestock and livestock products relative to the prices of supplements and other feedstuffs. The prices of livestock and livestock products, in turn, depend upon the consumers' willingness and ability to pay for them. Changes in the consumers' willingness and ability to pay can be measured rather satisfactorily by changes in industrial payrolls.

The price that consumers are willing to pay for any given quantity of lard substitutes depends quite largely upon their incomes. In times of prosperity and increasing payrolls, the prices of edible fats and oils increase after adjustments are made for changes in supply. Likewise, in times of depression and decreasing payrolls, the reverse takes place—that is, prices decrease.

Therefore, in an analysis of the factors affecting the prices of both soybean meal and soybean oil, we have to consider both the supply of these products and competitive products and the demand for them as represented by the numbers of livestock and the incomes of consumers.

Soybean meal. Because the production of soybeans has increased to the point where soybean meal and soybean oil make any significant fraction of total meals and oils, only in the last four or five years, the procedure to be followed should appropriately be a consideration of the factors affecting the prices of

cottonseed meal and cottonseed oil, which are dominant as far as supplies are concerned. Then, the relationship between soybean meal and cottonseed meal and soybean oil and cottonseed oil should be determined. This procedure was followed.

The factors used in this analysis in relation to cottonseed-meal prices at Memphis were: (1) income of industrial workers; (2) supplies of all oilseed cakes and meals per cattle animal unit; and (3) relationship between feed-grain supplies per grain-consuming animal unit and oilmeal supplies per cattle animal unit. On the basis of past relationships, and the December, 1940, estimates of supplies of meals, grains, and animal numbers, and a further estimate that the index of income of industrial workers will average 110 percent of the 1924-29 average in 1940-41 (October to September), the estimated average price of cottonseed meal at Memphis for 1940-41 is about \$29.25 a ton. On the basis of past relationships between soybean-meal prices and cottonseed-meal prices and the factors believed to influence these relationships, the estimated average price of soybean meal is approximately \$29.80 at Chicago or \$26.60 at Decatur (under the assumption that the index of industrial income will average 110 percent). The Chicago wholesale price December 31, 1940, was \$29.20. At that time the income of industrial workers was closer to 105 percent than to 110.

Soybean oil. Estimates of probable soybean-oil prices are based upon past relationships to cottonseed-oil prices and upon factors believed to influence this relationship. Factors used to estimate the 1940-41 average price of cottonseed oil at southeastern mills were: (1) income of industrial workers; (2) United States production of cottonseed oil, soybean oil, corn oil, peanut oil, and lard; and (3) allowance for an unexplained downward trend in prices in recent years. Under the assumption that the index of industrial income will average 110 percent of the 1924-29 average and that past relationships will continue, an average price of 6.2 cents a pound is estimated for cottonseed oil at southeastern mills, and an average price of 6.0 cents a pound for soybean oil at Decatur. The price of soybean oil at Decatur was $4\frac{3}{4}$ cents December 31, 1940, but the price of most edible fats and oils rose rapidly in early January, 1941. On January 10, 1941, however, the price of soybean oil was still considerably below the estimated seasonally-adjusted price, but the price of soybean meal was above the estimated seasonally-adjusted price. The unfavorable international situation represented by restricted outlets for fats and oils caused by the blockade and other war measures is likely to keep the price of soybean oil below the estimated price that was based upon recent relationships which inadequately discount the present unusual difficulties in international trade.

Soybeans. The price of soybeans will equal the price of its products—oil and meal—less the processors' margin. If we reduce our estimate of soybean-oil prices to 5.25 cents at Decatur, permit the estimated price of meal to stand at \$26.60 at Decatur, and allow the processors a margin of 15 cents a bushel, the estimated average price of a bushel of No. 2 yellow soybeans at Decatur in 1940-41 would be approximately 98 cents. This estimate is based upon a yield of 91 $\frac{1}{4}$ pounds of oil and 48 $\frac{1}{2}$ pounds of meal per bushel of soybeans. Under these circumstances the Illinois farm price for farm-run soybeans would average approximately 90 cents a bushel. With any adjustment of 5 percent in the index of income of industrial workers upward or downward from the estimated average of 110 percent of the 1924-29 average, an adjustment of 6 or 7 cents a bushel in the same direction would be required from the estimated Illinois farm price of 90 cents. This would reflect adjustments of \$2.00 a ton in the price of meal and $\frac{1}{3}$ cent a pound in the price of oil.

Seasonal variations. In years gone by, the price of soybeans has shown a very marked seasonal variation. The price of beans is usually lowest in October, increasing rather rapidly until February, slightly in March and April, and faster

in May and June. After this time, the price decreases rather rapidly until the low point is reached again in October. More reliance can be placed, however, upon the estimates of annual average prices of soybeans than upon any estimate of monthly prices. If we have a very high price in the fall and early winter, as compared with the estimated annual average price, the usual seasonal rise through May and June would not be expected, certainly not to the extent that it has averaged in recent years. The relatively high prices in May and June do not reflect similar rises in the prices of meal and oil. Probably, the demand for seed beans to care for a rapidly expanding acreage coupled with small stocks on farms accounts for the May and June strength in soybean prices.

If the recent seasonal movements of Illinois farm prices of soybeans should recur this year and if the average should be 90 cents a bushel, the monthly prices would be as follows:

	<i>cents</i>		<i>cents</i>
October, 1940.....	73	April.....	99
November.....	75	May.....	103
December.....	82	June.....	105
January, 1941.....	91	July.....	97
February.....	96	August.....	85
March.....	98	September.....	76

The October Illinois farm price was 65 cents, or 8 cents under the above estimate. The November price was 85 cents, or 10 cents above the estimate. The December price was 81 cents, or 1 cent below the estimate based upon the usual seasonal movements and upon an annual average price of 90 cents a bushel.

The fact that farmers marketed a relatively small fraction of their beans immediately after the harvest tended to strengthen the fall price and doubtlessly accounted for a much larger-than-usual seasonal rise in price between October 15 and November 15. A continuation of this holding policy may result in more orderly marketing and a reduction in the amount of price variation from month to month. On the other hand, a cyclical increase in demand is underway at the moment, which, if it continues, will have a tendency to strengthen the prices of soybeans and soybean products. This increase would tend to make possible more than the usual seasonal rise in prices during the next few months, or, at least, would tend to offset the depressing influence of a larger-than-usual fraction of the crop coming on the market later in the season. If the methods of financing the armament program point definitely to serious inflation later on in the year, the price of soybeans may be bid up in anticipation of a later increase in the consumer purchasing power.

G. L. JORDAN

Footnotes for the following page:

¹⁻¹²The first source is for annual data; the second is for current data from which tables may be brought to date.

¹Survey of Current Business, 1936 supplement, U.S. Dept. of Commerce; subsequent monthly issues. ²Same as footnote 1. ³Illinois Crop and Livestock Statistics, Circular 438 (1937); monthly mimeographs of Statistical Tables for Illinois Crop Report, converted from 1910-14 = 100 to 1924-29 = 100 by multiplying by .7151. ⁴Agricultural Situation, Bureau of Agricultural Economics, U.S.D.A.; Agricultural Situation, converted from 1910-14 = 100 to 1924-29 = 100 by multiplying by .6486. ⁵Calculated from data furnished by Bureau of Agricultural Economics; Survey of Current Business, seasonally adjusted. ⁶Calculated by Department of Agricultural Economics, University of Illinois, seasonally adjusted. Data from Farm Income, Bureau of Agricultural Economics; B.A.E. monthly mimeograph. Receipts from sale of Principal Farm Products (government payments not included). ⁷Obtained by dividing Index of Illinois Farm Income (column 6) by Index of Prices Paid by Farmers (column 4). ⁸Monthly Indexes of Non-Agricultural and National Income, Supplement, August, 1937, B.A.E.; Price and Demand Situation, or Agricultural Situation. ⁹Survey of Current Business, 1938 Revision; subsequent monthly issues, unadjusted for seasonal variation. ¹⁰Federal Reserve Bulletin of Federal Reserve Board, September, 1933 and subsequent issues; Survey of Current Business, seasonally adjusted. ¹¹Preliminary estimate. ¹²Illinois Crop and Livestock Statistics, Cir. 438; Monthly price releases, State Agricultural Statistician.

TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural income ⁸	Factory payrolls ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. In money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period.	1926	1926	1924-29	1924-29	1924-29	1924-29	1924-29	1924-29	1923-25	1935-39
1929.	95	105	104	99	103	103	104	107	110	110
1930.	86	88	89	94	83	87	93	100	89	91
1931.	73	65	62	80	58	58	72	87	68	75
1932.	65	48	41	69	43	43	62	68	47	58
1933.	66	51	45	71	49	51	72	63	50	69
1934.	75	65	61	80	57	55	69	72	64	75
1935.	80	79	82	81	64	65	80	77	74	87
1936.	81	81	86	80	74	82	103	90	86	103
1937.	86	86	96	84	80	87	103	95	102	113
1938.	79	69	69	80	72	81	101	88	78	88
1939.	77	65	65	78	72	81	97	93	91	108
1939 Dec.	79	68	66	79	79	99	125	97	104	126
1940 Jan.	79	69	68	79	79	100	126	97	98	122
Feb.	79	68	67	79	83	100	126	96	98	116
Mar.	78	68	66	79	76	98	124	96	98	112
Apr.	79	69	67	80	82	76	96	95	96	111
May.	78	68	69	80	80	90	112	96	96	115
June.	78	66	65	80	70	71	89	97	98	121
July.	78	66	67	79	71	72	90	98	96	121
Aug.	77	66	69	79	71	80	101	99	104	121
Sept.	78	66	72	79	76	84	106	100	110	125
Oct.	79	66	72	79	80	98	124	100 ¹¹	114	129
Nov.	80	68	73	79	79 ¹¹	...	...	101 ¹¹	115	132 ¹¹
Dec.	80 ¹¹	69 ¹¹	74	79	...	...	...	...	...	136 ¹¹

TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS¹²

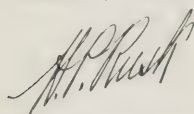
Product	Calendar year average			December 1939	Current months		
	1924-29	1938	1939		October	November	December
Corn, bu.....	\$.81	\$.45	\$.43	\$.47	\$.58	\$.56	\$.52
Oats, bu.....	.42	.24	.28	.35	.28	.33	.33
Wheat, bu.....	1.30	.68	.67	.88	.75	.80	.79
Barley, bu.....	.66	.53	.41	.44	.48	.48	.49
Soybeans, bu.....	1.94	.75	.74	.95	.65	.85	.81
Hogs, cwt.....	9.97	8.06	6.56	5.10	6.00	5.70	5.80
Beef cattle, cwt.....	8.57	7.68	8.18	8.30	9.60	9.80	9.80
Lambs, cwt.....	12.22	7.76	8.18	8.20	8.00	8.40	8.80
Milk cows, head.....	78.00	60.00	63.00	65.00	65.00	65.00	68.00
Veal calves, cwt.....	11.27	8.89	9.15	9.10	9.70	9.80	10.20
Sheep, cwt.....	6.52	3.36	3.44	3.60	3.45	3.45	3.45
Butterfat, lb.....	.42	.25	.23	.26	.27	.30	.34
Milk, cwt.....	2.32	1.66	1.59	1.80	1.75	1.90	2.00
Eggs, doz.....	.30	.19	.16	.19	.20	.23	.26
Chickens, lb.....	.21	.15	.13	.11	.13	.13	.13
Wool, lb.....	.36	.21	.25	.31	.31	.33	.34
Apples, bu.....	1.59	.95	1.07	.95	.90	1.10	1.20
Hay, ton.....	13.88	7.65	6.05	6.50	6.70	6.80	7.30
Potatoes, bu.....	1.39	.73	.80	.80	.70	.70	.70

¹⁻¹²For sources of data in tables see previous page.

Cooperative Extension Work in Agriculture and Home Economics: University of Illinois, College of Agriculture, and the United States Department of Agriculture cooperating. H. P. Rusk, Director. Acts approved by Congress May 8 and June 30, 1914.

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EXTENSION SERVICE IN AGRICULTURE AND HOME ECONOMICS

College of Agriculture

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Number 69

HOG PRODUCTION AND MARKET PROSPECTS

The rise of hog prices during the latter part of December and early January was unusually rapid. The weekly average price of all hogs at Chicago, which was only \$6.14 during the third week of December, rose to \$8.11 for the third week of January. Since mid-January, prices have remained close to the \$8.00 level, averaging \$7.70 for the week ending February 22.

The weekly course of the average price at Chicago and of slaughter at 27 markets is shown by Figure 1. It will be noted that the bulk of marketings occurred considerably earlier this winter than last winter. The very sharp decline

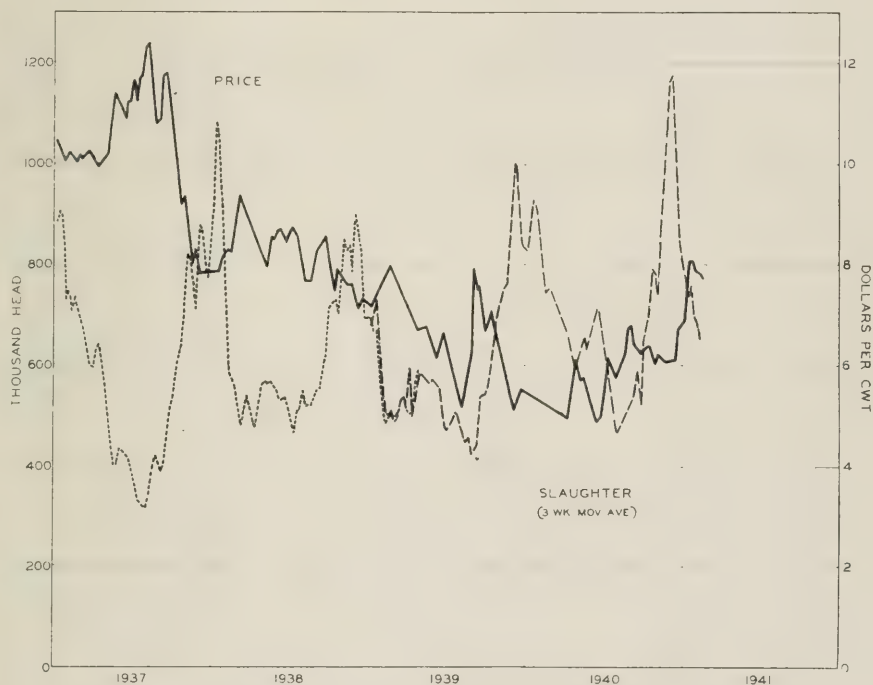


FIG. 1.—HOGS: PRICES OF PACKER AND SHIPPER PURCHASES AT CHICAGO AND SLAUGHTER AT 27 MARKETS, WEEKLY

Hog prices declined from 1937 to 1940 due to a combination of decreasing demand and increasing slaughter. The rise since the middle of 1940 has been due primarily to improved demand, but in November and December prices were held down by exceptionally heavy and early marketings.

of marketings was primarily responsible for the rapid rise of prices in late December and early January. That rise, like the one of last summer, has been a most cheering one to hog producers. Farmers are naturally anxious to avoid a repetition of the "5-cent hogs" of the first half of 1940.

This, of course, raises the question of what has been responsible for the price rise. Several things have occurred in the past 8 months which would tend to cause an improvement in hog prices. In the first place, both the spring and fall pig crops of 1940 were smaller than those of the preceding year. In the second place, improved industrial activity and consumer incomes have tended to increase the demand for hog products. Finally, the sharp decline in hog marketings since mid-December has tended to improve prices since that time.

Some people have been inclined to lay stress upon the reduction in the pig crop as a factor in improving prices. In view of this, it is not surprising that some hog producers should question the suggestion made by the Secretary of Agriculture in December, that farmers increase hog production. The statement said in part: "Farmers have an opportunity to increase their income from hogs by increasing production (number of pigs raised) above the level now indicated." This statement, coming after several years of effort to keep the level of hog production down, quite naturally appears to involve an abrupt change of policy upon the part of the Department of Agriculture.

It is to be admitted that some of the popular arguments advanced for the program of past years and the present proposal that farmers increase their hog production in order to increase their income from hogs may not be altogether consistent. However, there is no inconsistency in the general idea that, if production is to be adjusted to demand, it should be decreased to meet a low level of demand and increased again when demand increases. Furthermore, there can be no doubt that demand has increased, and that there is every prospect of maintaining a good level of demand for hogs as well as other meat animals during 1941 and 1942. Indeed, the high level of demand that is growing out of the defense program is almost certain to continue beyond 1942.

A sound answer to these problems involves an analysis of prospects for hog prices in the current marketing year, as well as an analysis of the factors which have been responsible for the rise in prices during the past 7 months. It involves in particular an analysis of how much of the past and prospective rise in prices may be attributed to a reduction in supplies and how much to an improved demand.

Prospects for the marketing year. In an appraisal of prospects for hog price movements, one approach is to consider the situation for the current year in comparison with that of the previous marketing season. In 1939-40 the average price of all hogs slaughtered under federal inspection was \$5.62. In that marketing year 47.6 million head of hogs weighing 11.1 billion pounds were slaughtered under federal inspection. The level of domestic demand which resulted in an average price of \$5.62 for a total of 11.1 billion pounds may be indicated by any one of several measures. One of these, the index of nonagricultural income, averaged 97 during the marketing year.

Supply. For the 1940-41 marketing year, prospects are for higher prices both because of smaller supplies and because of a higher level of demand. Smaller supplies are indicated by the fact that the pig crop of 1940 was smaller than was that of 1939. According to estimates of the Agricultural Marketing Service, the pig crop amounted to 77.0 million head in 1940 as compared with 85.9 million head in 1939. Most of the pigs farrowed in any calendar year are marketed in the 12 months beginning with October of the same year. The bulk of the spring pig crop is marketed from October to April, and the bulk of the fall pig crop, from May to September.

In the March, 1940, issue of *Illinois Farm Economics*, charts were shown

depicting the relationship between the total pig crop and the total hog slaughter, and the relationship between nonfederally-inspected slaughter and hog prices. On the basis of these relationships, it was forecast that federally-inspected slaughter of hogs during the 1939-40 marketing year might amount to about 49 million hogs, and that their total live weight might be in the vicinity of 11 billion pounds.

On the basis of these same relationships, the estimated pig crop of 1940 might reasonably be expected to yield a total slaughter of about 68 million head, and, with prevailing prices, noninspected slaughter seems likely to amount to about 23 million head during the 1940-41 marketing year. Thus, federally-inspected slaughter might approximate 45 million head if it were not subject to any unusual influences.

However, fewer hogs were slaughtered under federal inspection in 1939-40 than would ordinarily be expected from a pig crop of 85.9 million head. This fact, together with some other things, suggests that a somewhat larger-than-usual percentage of the 1939 pig crop was held over to be marketed in 1940-41. Consequently, slaughter under federal inspection may well amount to as much as 46 million head in 1940-41.

From October to December of the current marketing season, the average live weight of hogs slaughtered under federal inspection was 225.9 pounds, as compared with 229.3 in the corresponding months of 1939. With the rise of hog prices and the more profitable feeding ratio, hogs may run somewhat heavier in the coming months than in the past 4 months, but for the entire marketing year they will probably average somewhat below the 234 pounds of the 1939-40 marketing season. If, as indicated above, 46 million hogs should be slaughtered under federal inspection, and if they should average 230 pounds as compared with the 234 of last year, the total live weight of hogs slaughtered in 1939-40 would be around 10.5 billion pounds.

A reduction in the weight of hogs slaughtered under federal inspection from 11.1 to 10.5 billion pounds can, in the light of relationships of the past 20 years, be expected to result in the average price for the marketing year increasing from \$.80 to \$1.00 per hundredweight.

Demand. The price-raising effect of improved demand conditions, on the other hand, seems likely to be considerably greater than will be that of reduced supplies. Unfortunately, we have no very reliable indication of what the level of the nonagricultural income index or any other index of domestic demand is likely to be during the 1940-41 marketing year. For the months October through December of the current marketing year, the index of nonagricultural income averaged 101.7 as compared with 96.0 during the corresponding months of last year and 96.9 for the entire marketing season. In view of the business boom engendered by the defense program, the average during the 1940-41 marketing year may well be in the vicinity of 105 to 110 percent of the 1924-1929 average, if inflationary tendencies have little effect on it. An increase in hog prices, such as would accompany a rise in the nonagricultural income index of 8 to 13 points, might, on the basis of past relationships, be expected to amount to about \$1.20 to \$2.20 per hundredweight.

All of these things consequently suggest that, if inflationary forces do not have an important influence on hog prices during the remainder of the hog marketing season, the average price for 1940-41 may well be \$2.00 to \$3.00 per hundredweight higher than the average for 1939-40. If inflation should develop, a still greater rise might occur. Inasmuch as the average price of hogs at Chicago during the first 3 months of the marketing season was only a trifle over \$6.00 per hundredweight and the January average, only a little over \$7.50, prices from February to September would have to average above the current level of approximately \$8.00 per hundredweight if the season's average price is to be brought up to somewhere between \$7.60 and \$8.60 per hundredweight.

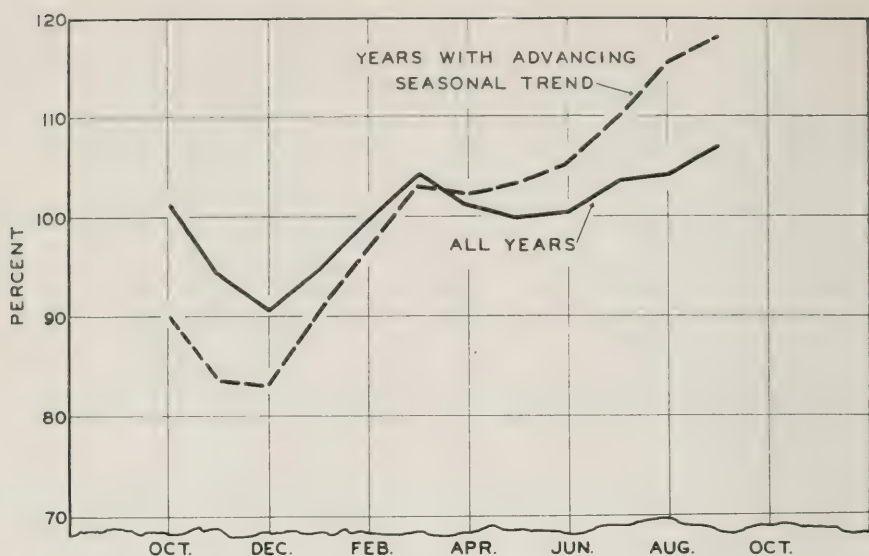


FIG. 2.—SEASONAL INDEXES OF PRICES OF PACKER AND SHIPPER PURCHASES OF HOGS AT CHICAGO

On the average, hog prices have two seasonal peaks, one in March and the other in September. When there is not an upward trend during the season, the September peak is only a little higher than that of March, but in years when there is a general advance during the marketing year, the September peak is much higher.

Seasonal movements. The average seasonal movement of hog prices is indicated by the solid line in Figure 2. There is typically a rise of prices from December to March. This rise is followed by a smaller decline as the fall pig crop comes to market in the spring months. Prices then rise again in July and August and reach a peak in September which is somewhat higher than is the peak in March.

In no individual year, however, are prices likely to follow exactly the average seasonal pattern. Irregularities of marketing and of demand conditions combine to give a unique course of prices each year. Nevertheless, these irregularities can often be anticipated to some degree. In years of a low corn-hog ratio, marketings are likely to be earlier than usual so that the seasonal low price is also earlier. Similarly, in years of a high corn-hog ratio, marketings are often late and result in late seasonal low points and price peaks.

Another significant difference between years is that, compared with the average seasonal movement, there is sometimes an upward trend of prices during the season. In other years there is a downward trend. The dotted line in Figure 2 shows an index of seasonal variation for years in which the seasonal trend is upward. In such years, the late summer or fall peak of prices is likely to be much higher than the spring peak.

Out of the past 20 years, the following 7 show a distinct upward trend of prices during the marketing year: 1921-22, 1923-24, 1924-25, 1927-28, 1933-34, 1934-35, and 1936-37. In some years, the rise was due to declining market supplies and in other years, to improving demand. Sometimes both supply and demand conditions contributed to the rising seasonal trend.

A generally rising tendency of hog prices can be expected for the 1940-41 marketing season for three reasons. First, the general level of demand will probably be higher during the latter part of the marketing season than it was during the

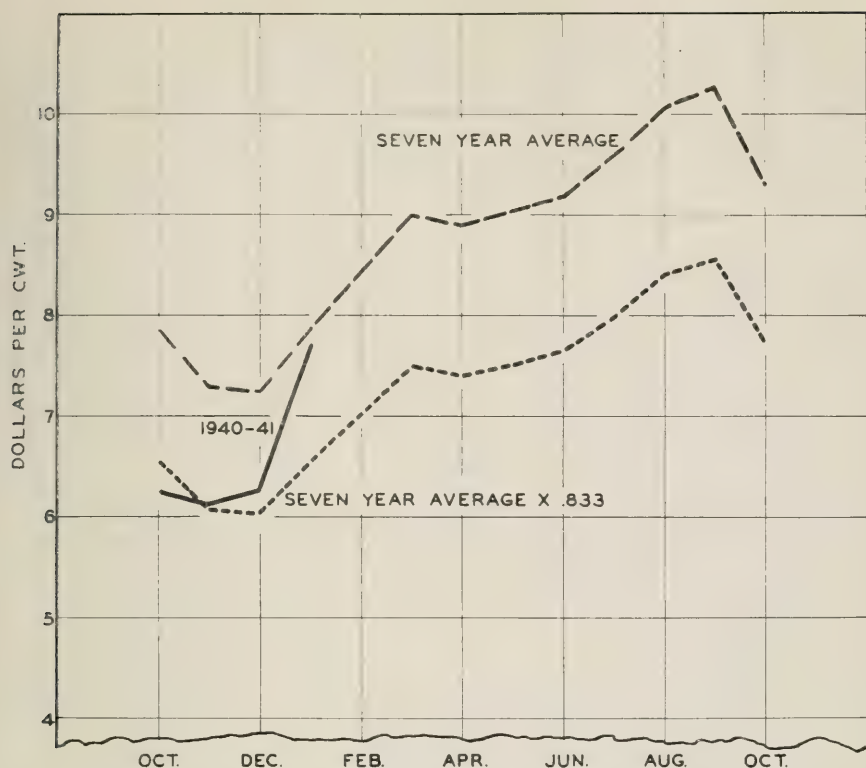


FIG. 3.—HOG PRICES AT CHICAGO IN YEARS OF ADVANCING SEASONAL TREND

Hog prices have shown a general upward trend for the year in the following 7 of the past 20 marketing years: 1921-22, 1923-24, 1924-25, 1927-28, 1933-34, 1934-35, 1936-37. The advances have resulted sometimes from decreasing supplies, sometimes from improving demand, and sometimes from both. In 1940-41 prospects are that both improving demand and decreasing supplies will contribute to an advance, but it is not likely that the course will follow closely the smooth pattern of the 7-year average.

early part. Second, market supplies during the early part of the marketing season were much heavier relative to the typical seasonal movement of supplies than they will be during the remainder of the season. Finally, supplies promise to be slightly smaller during 1941-42 than during 1940-41.

In view of the prospect of a rising seasonal tendency in prices during the current season, it will be of interest to compare prices this year with the average of price movements in other seasons when prices have shown a rising tendency for the marketing year as a whole. Figure 3 compares prices during the first 4 months of the current marketing year with the average of prices during 7 years in which prices showed a general improvement during the marketing year. One broken line shows the actual average for the 7 years. The other line shows that average reduced by approximately 17 percent in order to make the level of prices for the months October to December the same as that for the corresponding months of 1940-41. The rise from December to January was much greater this year than was the average rise in prices during the 7 other years of marked price advances.

In the 7 years of seasonally rising prices, the rise from December to the fol-

lowing September has amounted to approximately \$3.00 per hundredweight. The average price paid for hogs slaughtered under federal inspection for the 7 marketing years was \$8.41. This average is nearly as high as is the upper limit of the range suggested above in the light of prospects for supplies and demand for 1940-41. On the other hand, 83.3 percent of the 7-year average is \$7.26, which is somewhat below the lower limit of price suggested for the current season.

In considering average seasonal movement, we must remember that in no year do prices follow so smooth and regular a pattern as that depicted by the averages. Neither of the two broken lines in Figure 3, consequently, should be looked upon as constituting a forecast of the course of prices for 1940-41. They are, rather, bases of comparison which may be helpful from time to time in judging price prospects in the light of a constantly changing situation. In time of major wars, price movements are especially likely to be erratic. The course of consumer incomes and possible price control measures which the federal government may take are likely to be of major importance in determining hog price movements during the remainder of the marketing year.

Price rise due mostly to improvement in demand. Since last June, hog prices at Chicago have risen by almost \$3.00 per hundredweight. Most of this rise must be attributed to increasing demand rather than to decreasing supplies. True, the sharp rise during the latter part of December and early January was primarily the result of reduced marketings since mid-December, but up until that time marketings had been much heavier than they were in the previous year, and the full effect of the great improvement in demand in the preceding 6 months had not been apparent. Very heavy marketings during the first 3 months of the marketing year obscured the great importance of the improving level of demand. In each of the months from October through December, the total number of hogs slaughtered under federal inspection exceeded the corresponding figure for 1939 by approximately 1 million head, or 20 percent. Nevertheless, prices in these months averaged 14 cents per hundredweight above those in 1939. It was not until January that monthly inspected slaughter fell below the level of the preceding year, and for the months October through January, federally-inspected slaughter for 1940-41 amounted to 20.5 million head as compared with 18.6 million head during the corresponding months of the previous season. If the level of demand had not improved greatly, prices would presumably have been lower instead of higher than a year previous.

The reduction of the pig crop from 86 million head in 1939 to 77 million head in 1940 presumably has had some strengthening effect upon prices because packers are anticipating smaller supplies in the months to come. Nevertheless, as pointed out above, the full effect of the decrease in the pig crop, as evidenced by how much it may be expected to influence prices in the 1940-41 crop year as compared with the previous year, could scarcely be more than \$1.00 per hundredweight. The rise of nearly \$3.00 per hundredweight in hog prices since last June must, consequently, be attributed primarily to demand influences. The rise during the latter part of December and early January was unusually sharp due to the early peak of hog marketings. With more normal distribution of marketings, the rise would have been less sharp, not as a result of present prices being lower but as a result of prices being higher during November and December.

Some further improvement in hog prices due to better demand seems likely, but business activity has improved so much that industrial production in many lines appears to be close to capacity. Consequently, prospects are that improvement in demand in the coming year will be less than that of the past 8 months unless inflationary forces become an important factor. Any improvement in demand due to inflationary forces, of course, is primarily the result of a depreciating unit of measurement rather than a "real" and beneficial improvement in demand.

E. J. WORKING

WAR AND ITS EFFECT ON LAND PRICES

When the prices of farm products advance, land prices normally advance also, but they increase more slowly and in smaller amounts. As the prices of farm products rise and fall, rents show a somewhat corresponding rise and fall. Again as rents rise and fall, land prices show somewhat corresponding changes.

Rapidly-changing land rents and land prices have characterized more than one period when war and other influences were at work. A brief review of some of these situations in Europe and in this country may help to place such recent changes in a better perspective.

1. **Italy.** Two groups of farms are located near Pavia, Italy, one belonging to a college (1,700 acres) and one belonging to a hospital (2,300 acres until 1826 and 12,000 acres since that time).¹ The college lands in the lower valley of a river have had benefits from irrigation. The hospital lands did not require irrigation, since they were drained naturally. The college lands, however, were more productive.

In the 240 years ended in 1909, the nonirrigated hospital land rents increased 350 percent and the irrigated college land rents, 475 percent.

Then came the period of the first World War. Rents first advanced markedly for both kinds of land and then subsided for both. By disregarding this tidal movement of a quarter of a century ago and by counting back over the maximum stretch of 260 years, we find that the hospital land rents increased 480 percent and the college land rents, 700 percent.

Information on land prices as well as on rents for the college land covers the period since 1823. In that century, land prices increased 300 percent and the rent, 280 percent.

Statistics, such as these from Italy, seem to bring out three things in a long-time view:

1. In long-time trends, land prices and land rents move together. There was usually about \$20 of land price for each dollar of land rent.

2. In recent decades, there has usually been *more* than \$20 of land price for each dollar of land rent.

3. Rents and rent-valuation ratios have been affected by wars, but long-time trends seem to have persisted with little regard for wars. In any short-time view, therefore, that which belongs to more persistent influences should not be credited to war.

2. **England.** An English record of rents paid on a farm in Norfolk shows 80 pounds for 1712 and a rise to 200 pounds just before and just after the Napoleonic Wars.² When the currency was inflated and tariffs on foodstuffs were high, rents rose to 700 pounds. After the currency was deflated and tariffs on foodstuffs reduced, rents declined. About 1907, rents were at 160 pounds. Very little of this variation can be traced to changes in soil fertility or to changes in the importance of location with respect to local markets.

In the first century after Napoleon, land rents and land prices rose more in Italy than in England. Since the Napoleonic Wars, the pressure of population on the food supply has probably been less in England than in Italy. Furthermore, Italy's high tariffs against imports have played a decided part in recent decades. In the most recent decades, after more than 80 years of free trade, England's tariffs have tended again to raise land rents and land prices.

3. **The United States.** (a) **The War of 1812.** Farm real estate in the United States was touched by the War of 1812 and other phenomena of the Napoleonic

¹In "Land Rents and Land Values in Italy," *Journal of Farm Economics*, XXI, 1 (February, 1939), pp. 273-275, the author summarized a study by Giuseppe Medici.

²Thompson, R. J., "An Inquiry into the Rent of Agricultural Lands in England and Wales During the Nineteenth Century," *Journal of the Royal Statistical Society*, LXX, Part IV, 1907. Quoted in Warren, G. F., and Pearson, F. A., *Gold and Prices* (1935), p. 282.

period. As a result of financial inflation, the average land value in 14 counties in Pennsylvania rose from \$53 an acre in 1809 to \$111 an acre, or more than double, after the War of 1812.¹ Seven years later, deflation had carried the land value down to \$38 an acre. W. M. Gouge, writing of this period, said:

"Farms rose in price from 50 to 100 percent and sank again as rapidly as they had risen. Thousands were reduced to poverty, and a few rose to wealth on the ruin of their neighbors."

(b) **The Civil War.** During the American Civil War, advances in land rents did not push land prices out of bounds in most parts of the country. As late as 1870, however, currency inflation was still in existence because all the real estate values that were reported to the census were marked down 20 percent to reduce them to a gold basis. Those who regarded as permanent the land prices that were expressed in inflated currency suffered in some degree as did those with similar ideas after the War of 1812. The great abundance of good land which was almost free in the West prevented land rents and land values from advancing very greatly on the northern side of the lines during the war between the states. On the southern side, the blockade was a factor reducing prices for exportable surpluses until the excessive issues of Confederate money led to some illusory advances prior to the final collapse.

(c) **The World War.** The first World War added a mountain of price advance to what had been nearly two decades of steady climbing from the depths of the 1890's. By 1920, land prices in Illinois had advanced 60 percent over the immediate prewar 3-year period. This rate of increase compares with 29 percent in New Hampshire, 30 percent in New Jersey and Rhode Island, 54 percent in Michigan, 59 percent in Ohio, 61 percent in Indiana, 71 percent in Wisconsin, 113 percent in Iowa and Minnesota, 117 percent in Georgia, 122 percent in Arkansas, 123 percent in North Carolina, 130 percent in South Carolina, and, on the Pacific Coast, 30 percent in Oregon, 40 percent in Washington, and 67 percent in California. In the Mississippi valley and especially in the cotton states, the war period marked an advance in land prices. Ten years of downswing brought land prices back to the prewar level in most north-central states, and twelve years did the same job in the southern states. Thirteen years after 1920, land prices were between 25 and 35 percent below the prewar level. The recovery from 1933 to date has affected both land rents and land prices—it has brought land rents in dollars per acre back to their prewar levels but has not yet brought back land prices.

Some major questions immediately come to mind. Why, with rents well recovered since 1933, have land prices lagged? Are the makings of a strong advance in land prices only awaiting a spark from war-time inflation to start an upward movement like the one which preceded 1920?

Two lines of approach are needed to give us an insight into these questions.

Products-into-price, or P-I-P ratios. The realty-products coefficient, or products-into-price ratio, is simple. In one year, how many acres are needed to produce a gross value of products equal to the price of one acre? If the annual value of the products—crops and livestock both counted but without duplication—is one-fourth the price, then the total product of 4 acres is needed to buy one acre. If the cost of production were deducted, more acres would be needed to produce enough to pay the price of one acre. Gross production is something that a person can see and can suppose that others see about as he does. Net production involves bookkeeping and cost accounting and, for most farms, is more a matter of the future than of the past.²

¹Gouge, W. M., *A Short History of Paper Money and Banking* (1835), p. 35. Quoted in Warren and Pearson, work cited, p. 382.

²For a more adequate treatment of the differences that costs make between gross and net ratios of products into land prices, see "Gross Earnings as a Guide in Farm Appraisals," *The Appraisal Journal* (July, 1939).

In 1927-1931, the average acre in the United States had a sale price of $4\frac{1}{3}$ times the gross product of the average acre. In 1932-1936, the ratio was $4\frac{2}{3}$; in the first part of the 5-year period, 1937-1941, the ratio has been $3\frac{3}{4}$.

In a period of falling prices of farm products, some of us expect to see the products-into-price ratio rise, and in a period of rising prices, some of us expect to see it fall. Why should the products-into-price, or P-I-P, ratio fall when the prices of farm products rise? The answer is simple. When rising prices of farm products bring advances in share rents, cash rents are also likely to advance, but less rapidly. A prospective purchaser, if he is a tenant, figures that he can make money by renting and can possibly get better terms as a land buyer if he has more cash to apply. This reasoning may usually be sound, but it counts less in boom periods when it really ought to count more. In any case, higher rents are discounted as probably not destined to continue.

Thus, in a period of rising prices, land prices have tended to follow behind the prices of farm products so that products from about $1\frac{2}{3}$ fewer acres will be required to pay for an acre of land. In other words, if the products of $4\frac{2}{3}$ acres were required in a period of level prices, those of only 3 acres would be required if the prices of farm products had been moving upward for 10 years. The farm purchaser sits in the rear of the sled and looks back toward whatever has preceded—a valley below or a peak above. He does not know whether a plateau, a peak, or a deep valley is immediately ahead. If he has been going up, he may assume that he will soon go down. He has no desire to be committed to high land prices if the values of farm products are about to slide to low levels. Therefore, when prices of farm products advance, land prices lag, and the number of acres of products required to buy an acre shrinks.

When prices of farm products fall, the reverse is the case. Land prices lag and the number of acres of farm products required to buy an acre of land increases. About $\frac{2}{3}$ of an acre was added in the country as a whole in each 10-year period from 1869 to 1889. In a half decade of falling prices from 1924-1927 to 1928-1932, the P-I-P ratio advanced $\frac{1}{4}$ acre.

With prices advancing as they have since 1933, purchasers will pay only the product of 3 to 4 acres for land for which they would have paid the product of 4 to 5 acres 10 years before.

In the United States as a whole, the P-I-P ratio was 4.1 in 1924-1926, 4.4 in 1927-1931, and 4.7 in 1932-1936, a rising trend.

In Illinois, the P-I-P ratio was 6.4 in 1924-1926, 6.1 in 1927-1931, and 6.0 in 1932-1936. These coefficients show a trend in reverse to the national trend. They suggest that, if land prices in Illinois had been 5 in 1924-1926 instead of 6, they might have held their own and might even have advanced with the national trend. Iowa also showed a downward trend when the times generally favored an upward trend. In Iowa, the P-I-P ratio was 6.7, 6.1, and 5.9. Two other states showed downward trends in this period: California, 5.5, 5.3, and 4.8; and Florida, 4.8, 3.3, and 3.2. Thus, Illinois and Iowa had their land prices so high that it took the total product of 6 to 7 acres to buy an acre. In fact, they were so high that the P-I-P ratio shrank when it was enlarged in 44 other states.

What will the period of 1936-1941 show for Illinois and the nation? With prices of farm products advancing, land prices should show an advance, but not so large a one as that of farm products. Instead of paying the product of 6 acres for an acre, therefore, we may expect to see buyers pay the gross product of 5 acres or less. The P-I-P ratio may even be reduced in some southern states, where it has been between 2 and 3 acres. In the nation as a whole, it may approach 4 or fewer acres rather than $4\frac{2}{3}$ acres as in 1932-1936.

The following question may arise: Why has the P-I-P ratio been higher in the north-central states than in the south-central states? At least five reasons

have come to view. Low interest rates on money borrowed for land purchase and other farm uses have permeated southern states slowly. Types of farming in portions of the South place upon landowners heavy burdens for supervising and making seasonal advances to tenants. Some southern areas have been regarded as characterized by disadvantages in respect to market, school or residential features. The masses in southern agriculture have not produced many individuals with effective demand for high-priced farm land. Buoyant expectations as to future advances in southern farm land values generally have not been widely shared by persons expecting to farm or to finance others in farm purchase.

In the early part of the first World War, the P-I-P ratio in the United States was 5, but it fell to 3.3 in 1917-1919. In 1921, after land prices had been dragged up and after the values of farm products had crashed, the ratio flipped up to 6.4. Then, land prices crashed, and the ratio was restored to 4 from 1925 to 1929. By 1933, it was at 5 again, having reached that point because land prices fell faster than did prices of farm products, which did not maintain themselves.

In Illinois in 1912-1914, the P-I-P ratio was 10.4, over twice the national coefficient. Overvaluation was prevalent in the state even then. In 1919, the Illinois coefficient had dropped to 5.5; in 1921, with a swift drop in the prices of farm products, it was at 12; then, in 1929, with land prices beating the prices of farm products in the downward race, it fell to 5.5. Between 1929 and 1932, when the P-I-P ratio was 9, land prices stiffened against the values of farm products; but in 1934, the two were equated at 5.7. Although the P-I-P ratio of the United States has stood at 80 to 90 percent of the immediate prewar level since 1933, that of Illinois has stood at 50 to 60 percent.

These percentages seem to mark Illinois as a state which, after having had marked overvaluation of real estate immediately preceding the first World War and during the war, continued to shed its overvaluation slowly.

These statements give a warning against what might happen if prices of farm-products should advance markedly in the 1940's because of inflationary developments. Perhaps a prospective farm purchaser should not pay much more than the product of 5 acres for an average acre of Illinois farm land; in fact, he should pay less instead of more in a period of rising prices of farm products. He needs to allow, furthermore, for different situations within the state. In Illinois, the 1930 census figures, which apply to only a single year, showed a P-I-P ratio of 6.4 (\$2,400 of gross products per farm into \$15,443 average value of realty). In 24 counties in central, eastern, and northern Illinois, the P-I-P ratios were 9 to 32 percent above the state average—that is, 7.0 to 8.5—either because of high realty values or because of low values of farm products. In three north-eastern counties, Cook, DuPage, and Lake, the ratios were 57 to 79 percent above the state average—that is, 10.0 to 11.5. However, in 18 southern Illinois counties, the P-I-P ratios were only 47 to 70 percent of the state average—that is, between 3.0 and 4.5—for the same two reasons given above.

Returns per \$100 capital value. Another way of judging whether or not land prices are in adjustment is to consider the rate of return per \$100 of capital value. Changes in the 40 years 1900-1940 can be examined with some startling results if a comparison is made between the changes in the net yield on \$100 invested in bonds of the better-known varieties and the returns from \$100 of farm real estate. An important question arises: How much can the returns on \$100 invested in farm land be expected, under various conditions, to differ from the returns on \$100 invested in high-grade bonds?

Rates of net return on money invested in bonds issued by industrial establishments (including public utilities) reached peaks, in terms of year averages, slightly above 5 percent in 1919-20 and in 1932. In fact, from 1916 to 1934, these rates of net return were in excess of $4\frac{1}{4}$ percent, a higher annual rate than that for any year since 1900. The bonds of the United States Treasury reached a

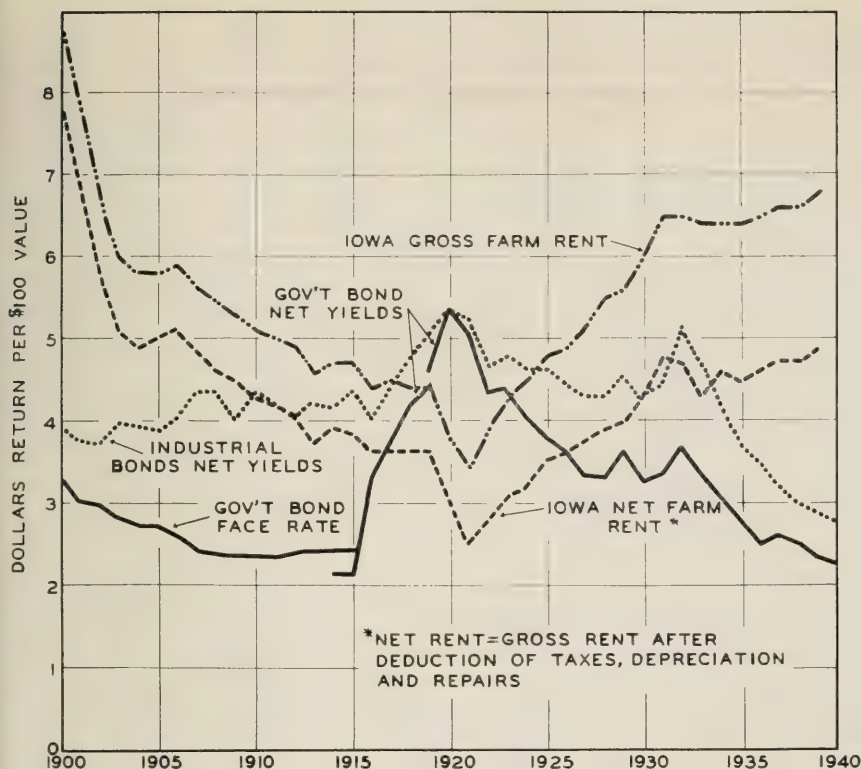


FIG. 1.—GROSS AND NET RENT OF SOME IOWA FARM REAL ESTATE AND BOND YIELDS, 1900-1940

One observes (1) that increased taxes and other real estate costs have tended to hold net rents of the Iowa farm real estate included farther below gross rents in recent years; (2) net rents per \$100 value were at their low point in 1921 when land prices were at boom levels; (3) since about 1915 the trends of rents and of bond yields have been in opposite directions; and (4) returns from farm land were higher than those from bonds except during and immediately after the first World War.

higher yearly average in net returns in 1919 than in any other year since 1900, the 1919 average being nearly $5\frac{1}{2}$ percent. For about a decade prior to 1916, the bonds of the United States Government were floated at face rates averaging close to $2\frac{1}{2}$ percent, between $1\frac{1}{2}$ and 2 percentage points below the net rates prevailing for industrial bonds. Government bonds at that time bore net returns below industrial bonds largely because of the support which the national banks gave to the market for government issues so that these bonds could be used to meet note-issue requirements. These requirements were modified, however, under the Federal Reserve Act effective in November, 1914. From 1919-20 to 1927-28, rates on government bonds fell, as did those on industrial bonds, only more rapidly. From 1928 to 1932, net rates on industrial bonds showed considerable advance, but those on government bonds showed little or no advance. Since 1932, the net rates for industrials have been cut nearly in half, and those for governments have been reduced to two-thirds, bringing the former to slightly under 3 percent and the latter to about $2\frac{1}{2}$ percent. The difference in net rates between the two classes of bonds narrowed from 1932, when it was $1\frac{1}{2}$ percentage points, to 1940, when it was $\frac{1}{2}$ of 1 percentage point.

The land that was used for the present comparison is land in Iowa which was included in a cash-rent series established by the United States Bureau of Agricultural Economics.¹ In 1900, this cash-rented area apparently was yielding a net rent of about 8 percent, or double that of bonds. Although rents rose in the years immediately following, land prices advanced relatively more, thus reducing rent per \$100 value. By 1903, the net return on cash-rented land was higher than was that on industrial bonds by 1 percentage point; in 1910-1912, the two were substantially equal. From 1913 to 1933, farm land yielded a lower return at its current prices than did industrial bonds, and from 1917 to 1927, yielded less than did government bonds. This farm land showed higher net returns per \$100 capital value than did government bonds after 1926 and than did industrial bonds after 1933. By 1939, farm land was exhibiting a net return that was higher by 2 to 2½ percentage points than was that of both groups of bonds. At the end of the period 1900-1940, the net rate returned by this farm land per \$100 value was twice that of either government or industrial bonds.

From about 1912 on, and especially during the World War, land prices rose more rapidly than did rents, with a resulting reduction in the rent per \$100 land value. It is doubtful if the second World War will show inflationary effects making land investment as attractive as it was a quarter of a century earlier. A year of poor production in the United States or a year in which North American stocks of foodstuffs and agricultural raw materials would be taken by Europe in multiplied quantities might set the stage for a recurrence of attention to farm land investment as a hedge against inflation. At present, land prices are not likely to be advanced enough immediately to draw down rates of net returns. Public subsidy for land purchase by tenants and others is likely to remain a small item in the land market. The denial of exemption from income taxation may tend to make government bonds command a somewhat higher rate, but, except for bond issues for subscription in amounts high in proportion to current savings, government bonds may continue to yield net rates at 2½ per cent or less.

The following points may contribute to a prolongation of the period of relatively high rates of return on conservatively-valued farm land: (1) the memory of rather recent burdens from excessive valuation of farm land; (2) a concern that real-estate tax rates may not be low in relation to rents; and (3) the tendency of farmers, who at other times might be tempted to bid up land prices, to use their land income for purchasing modern facilities for their households, for obtaining more education for their children, for traveling more extensively, and, in general, for living more broadly.

C. L. STEWART

COMPENSATION TO TENANTS FOR IMPROVEMENTS AND DISTURBANCE

At the 1938 meeting of the American Farm Economics Association, the following statement was made:

"When ownership and operatorship are divided, the owner loses interest and the operator loses heart. It is not impossible, but it is more difficult, to maintain a relationship between two parties comparable to the situation existing when one intelligent and interested party is in control."

Some of our best and most secure farmers are tenants. On the other hand, a large amount of accumulated data and experience shows that the average tenant is much less secure than is the average owner and that tenants suffer certain social

¹U.S.D.A. Circular 548 (October, 1939), pp. 17-21. Somewhat similar data collected for Illinois have served as background information, some of which have been published in *Illinois Bulletin* 399 (March, 1934), pp. 554-568.

and economic disadvantages because of insecurity.¹ This statement says a great deal because stability and the things it engenders are the foundations upon which a satisfactory family life and progressive communities are built.

If the present farm tenancy system has some shortcomings, something should be done to remove them. This need for action is necessary, of course, under the supposition that a tenancy system is essential in the American scheme of property rights and that present rights will not be materially altered in the near future.

However, it may be fairly said that present concepts of ownership, sale, mortgage foreclosure, descent, trusts, testamentary disposition, and tenants' rights are built around a private property system which recognizes complete freedom of disposition and speculative transfer as fundamental rights. Many of the state laws have been drafted, not in the interest of a stable and successful agriculture but in the interest of creditors and unhampered private ownership. Nevertheless, the system of law as it exists now can be efficiently used to curb undesirable use of private rights, as is well illustrated by city and rural zoning ordinances, condemnation procedure, and the law of nuisance. If the enactment of wise legislation is encouraged when it is needed, the drastic turn that events sometimes take when serious problems are not considered realistically can be avoided.

Direct efforts to improve the tenancy system can be expended in two general areas—and these areas are interrelated. Education and legislation are the two areas. They are interrelated to this extent: Laws too far in advance of peoples' thinking usually fail or are harsh and inequitable. On the other hand, educational efforts sometimes fall short in effectiveness because of inadequate legislative support. The principles of compensation for improvements and for disturbance must be viewed in the light of these observations—that is, neither of them would have a beneficial effect if farm tenants and owners were not aware of the conditions which make them applicable, nor would either of them have widespread effect in preventing inequities unless they were also enacted into law.

Compensation for improvements and damage. Compensation to the tenant for improvements that he has made on the farm should be interpreted as follows: If a tenant increases the value of the farm by putting physical additions on the farm, he should receive a fair payment for the unexhausted value of these improvements when he leaves. This principle is more easily stated than applied. Some of the problems of its application, together with suggested solutions, are:

1. What is meant by improvements, and how far should a tenant be allowed to go in making them without securing the consent of the landlord?

Briefly, improvements include those physical additions or processes which increase the value of the farm. Limestone and phosphate, fences and tile lines, buildings, permanent pastures, and fall plowing are examples.

As to the consent required from the landlord, the English Agricultural Holdings Act, often cited as a model compensation law, makes three divisions:

(a) Those improvements requiring written consent (new buildings and other permanent improvements).

(b) Those improvements requiring written notice but no consent (drainage).

(c) Those improvements requiring no notice or consent (limestone, phosphate, legume seeding, and others).

In Illinois, two divisions should be adequate—one requiring the consent of the landlord and one requiring notice but not consent. Generally, the first division should include permanent improvements; the second, temporary improvements and additions to the soil.

¹The 1935 census of agriculture gives the following data concerning periods of farm occupancy in Illinois:

	<i>1 Year or Less</i>	<i>1 Year</i>	<i>2-4 Years</i>	<i>Total Under 5 Years</i>
Owners.....	5%	4%	12%	21%
Tenants.....	21	12	25	58

2. When and how should a tenant be recognized for such improvements?

If adequate information is available, a settlement is desirable at the end of the leasing period. However, a settlement at the end of each one-year or two-year period has its advantages. The landlord should pay the tenant the value of unexhausted improvements that he has made, to the extent that their value exceeds the value of improvements on the farm at the beginning of the term.

3. How should the value of improvements be determined?

The best guide on values is what such improvements are worth to an incoming tenant. This should be supplemented by tenants' records, showing cost of material, amount of labor expended, and other important points. Ordinarily a tenant and landlord should be able to reach an agreement on values. If they cannot, it is suggested that the issue be settled by arbitration or by a local landlord-tenant commission set up for the purpose of deciding factual issues under a compensation law.

In compensation cases, the landlord should have a reciprocal right to payment for damages that are beyond the ordinary. This right is generally known as "compensation for damage" and should be incorporated as a part of any law on compensation for improvements. Disputed questions as to damage, like those relative to improvements, should be referred to the local landlord-tenant commission.

Although landlord-tenant compensation legislation is novel, the essential principle upon which it is based—that is, to prevent one party from being unjustly enriched by another—is well established. The courts have recognized the principle in reported decisions, and the Illinois legislature has given effect to the principle in both eminent domain and ejectment statutes by providing a method for determining the value of improvements made by former occupants of the land.

Twenty years ago the Illinois legislature considered compensation legislation but failed to enact a law. At the present time, the only statutory protection that a tenant has for the improvements which he has made is the right to take them with him if they are removable. Obviously, this affords no protection where the improvements consist of permanent buildings, spread limestone, or other non-removable items.

Compensation for disturbance. Compensation for disturbance is a payment made by the landlord to the tenant when the latter is forced to quit the farm through no fault of his own. The payment is based on the theory that, in a well-settled country where farms are not readily available, landowners have an increased responsibility with regard to the tenure of the people who live on and operate their land. Payable damages should be based on several factors: (1) length of tenure; (2) general availability of farms; (3) cost of moving; and (4) loss to tenant through inability to find a farm that will fit his present equipment, machinery, and livestock. The English Agricultural Holdings Act sets one year's rent as a minimum disturbance payment. This amount would probably be too high under present conditions in Illinois. A law requiring a disturbance payment would not be entirely without precedent in Illinois—the guarantee of "quiet enjoyment" in a deed is similar in principle and purpose except that it applies to the grantor-grantee relationship.

Conclusion. Advantages to be gained in using the principle of compensation for improvements, damage, and disturbance can be effected in at least five different ways, each more or less distinct from the others:

1. By close and sympathetic cooperation of landlord and tenant, enabling the tenant to use his labor to the advantage of both himself and his landlord, and encouraging the landlord to purchase material for improvement because he knows that the tenant will use it judiciously and without waste.

2. By the use of written leases containing adequate provisions on compensation, damage, and disturbance.
3. By the use of a separate written contract to cover each unusual expenditure of labor or material by the tenant (in cases where the landlord and tenant do not have a suitable written lease).
4. By development in some of the courts of a more progressive attitude toward the rights of tenants in improvements made by them.
5. By sound and workable state laws on compensation for improvements, damage, and disturbance.

H. W. HANNAH

Footnotes for the following page:

¹⁻¹²The first source is for annual data; the second is for current data from which tables may be brought to date.

¹Survey of Current Business, 1936 supplement, U.S. Dept. of Commerce; subsequent monthly issues. ²Same as footnote 1. ³Illinois Crop and Livestock Statistics, Circular 438 (1937); monthly mimeographs of Statistical Tables for Illinois Crop Report, converted from 1910-1914 = 100 to 1924-29 = 100 by multiplying by .7151. ⁴Agricultural Situation, Bureau of Agricultural Economics, U.S.D.A.; Agricultural Situation, converted from 1910-14 = 100 to 1924-29 = 100 by multiplying by .6486. ⁵Calculated from data furnished by Bureau of Agricultural Economics; Survey of Current Business, seasonally adjusted. ⁶Calculated by Department of Agricultural Economics, University of Illinois, seasonally adjusted. Data from Farm Income, Bureau of Agricultural Economics; B.A.E. monthly mimeograph. Receipts from sale of Principal Farm Products (government payments not included). ⁷Obtained by dividing Index of Illinois Farm Income (column 6) by Index of Prices Paid by Farmers (column 4). ⁸Monthly Indexes of Non-Agricultural and National Income, Supplement, August, 1937, B.A.E.; Price and Demand Situation, or Agricultural Situation. ⁹Survey of Current Business, 1938 Revision; subsequent monthly issues, unadjusted for seasonal variation. ¹⁰Federal Reserve Bulletin of Federal Reserve Board, September, 1933 and subsequent issues; Survey of Current Business, seasonally adjusted. ¹¹Preliminary estimate. ¹²Illinois Crop and Livestock Statistics, Cir. 438; Monthly price releases, State Agricultural Statistician.

TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural income ⁸	Factory payrolls ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. In money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period	1926	1926	1924-29	1924-29	1924-29	1924-29	1924-29	1924-29	1923-25	1935-39
1929	95	105	104	99	103	103	104	107	110	110
1930	86	88	89	94	83	87	93	100	89	91
1931	73	65	62	80	58	58	72	87	68	75
1932	65	48	41	69	43	43	62	68	47	58
1933	66	51	45	71	49	51	72	63	50	69
1934	75	65	61	80	57	55	69	72	64	75
1935	80	79	82	81	64	65	80	77	74	87
1936	81	81	86	80	74	82	103	90	86	103
1937	86	86	96	84	80	87	103	95	102	113
1938	79	69	69	80	72	81	101	88	78	88
1939	77	65	65	78	72	81	97	93	92	108
1940	78	68	69	79	78 ¹¹	...	...	...	105 ¹¹	122 ¹¹
1940 Jan.	79	69	68	79	79	100	126	97	100	122
Feb.	79	68	67	79	83	100	126	96	99	116
Mar.	78	68	66	79	76	98	124	96	100	113
Apr.	79	69	67	80	82	76	96	95	98	111
May	78	68	69	80	80	90	112	96	98	115
June	78	66	65	80	70	71	89	97	100	121
July	78	66	67	79	71	72	90	98	98	121
Aug.	77	66	69	79	71	80	101	99	106	121
Sept.	78	66	72	79	76	84	106	100	112	125
Oct.	79	66	72	79	80	98	124	100	116 ¹¹	129
Nov.	80	68	73	79	80	101	128	102	116 ¹¹	132
Dec.	80	70	74	79	84 ¹¹	...	...	103 ¹¹	123 ¹¹	138
1941 Jan.	80 ¹¹	72 ¹¹	78	80	...	...	...	...	...	139 ¹¹

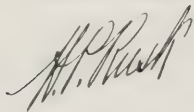
TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS¹²

Product	Calendar year average			January 1940	Current months		
	1924-29	1939	1940		November	December	January
Corn, bu.....	\$.81	\$.43	\$.56	\$.50	\$.56	\$.52	\$.54
Oats, bu.....	.42	.28	.32	.37	.33	.33	.34
Wheat, bu.....	1.30	.67	.81	.91	.80	.79	.81
Barley, bu.....	.66	.41	.46	.48	.48	.49	.49
Soybeans, bu.....	1.94	.74	.82	1.00	.85	.81	.91
Hogs, cwt.....	9.97	6.56	5.54	5.30	5.70	5.80	7.70
Beef cattle, cwt.....	8.57	8.18	8.84	8.50	9.80	9.80	10.40
Lambs, cwt.....	12.22	8.18	8.52	8.20	8.40	8.80	9.00
Milk cows, head.....	78.00	63.00	65.00	64.00	65.00	68.00	70.00
Veal calves, cwt.....	11.27	9.15	9.63	10.20	9.80	10.20	10.80
Sheep, cwt.....	6.52	3.44	3.44	3.60	3.45	3.45	3.95
Butterfat, lb.....	.42	.23	.27	.29	.30	.34	.29
Milk, cwt.....	2.32	1.59	1.67	1.75	1.90	2.00	1.85
Eggs, doz.....	.30	.16	.17	.17	.23	.26	.17
Chickens, lb.....	.21	.13	.13	.12	.13	.13	.14
Wool, lb.....	.36	.25	.30	.30	.33	.34	.33
Apples, bu.....	1.59	1.07	1.14	1.05	1.10	1.20	1.20
Hay, ton.....	13.88	6.05	6.68	6.50	6.80	7.30	8.20
Potatoes, bu.....	1.39	.80	.83	.90	.70	.70	.75

¹⁻¹²For sources of data in tables see previous page.

Cooperative Extension Work in Agriculture and Home Economics: University of Illinois, College of Agriculture, and the United States Department of Agriculture cooperating. H. P. Rusk, Director. Acts approved by Congress May 8 and June 30, 1914.

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THE RELATIONSHIP BETWEEN RURAL RELIEF PROBLEMS AND AGRICULTURE IN ILLINOIS

The administration of relief in the rural areas of Illinois is a major complex problem which confronts not only rural people but also all the people in the State of Illinois. The Agricultural Experiment Station at the University of Illinois, therefore, made a study of changes in types and policies of administration relative to rural relief in Illinois, of the present causes of dependency in rural areas, and of problems of public welfare as compared with other agricultural and social problems in the state in order to suggest certain changes which seem necessary for economic and efficient administration of the services now being offered. The data were collected in connection with other studies in the following 13 counties: Coles, DeKalb, Franklin, Mason, Mercer, Monroe, Montgomery, Pope, Scott, Whiteside, Woodford, Alexander, and Champaign (Fig. 1). The first 11 were included in a federal study and were taken to be representative of the 88 rural counties of Illinois on the basis of location, relative relief load in May and June, 1935, and types of family and industry and because no one of them contains a

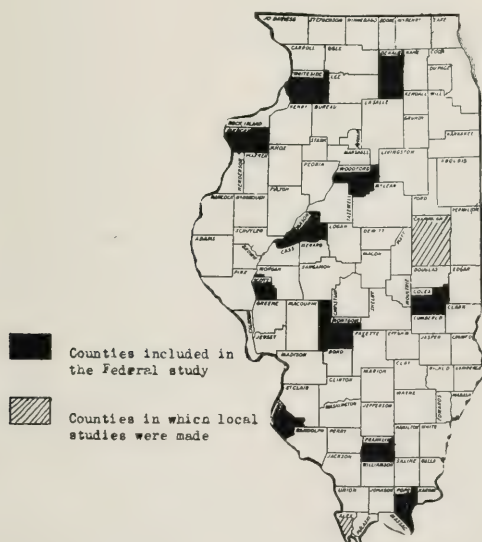


FIG. 1.—COUNTIES OF ILLINOIS INCLUDED IN THE STUDY
OF RURAL HOME ASSISTANCE

town with more than 25,000 people. Alexander and Champaign counties were subjects of special studies made in 1934, and the data from these studies were included because they have a distinct bearing on the problem.

The study showed in general that people on relief in rural areas in Illinois were predominantly native-born whites. Their schooling was less than was that of persons on relief in urban areas. The proportion of families with children under 16 years of age did not differ greatly between the rural areas and the state as a whole. However, a larger proportion of large families were in need of relief in the rural areas. Likewise, more older people in need of relief were living in rural areas, a fact borne out by the old age assistance program. The rural counties also had more unemployment, both because of the larger number of older people and because of the greater incidence of physical disability in the rural areas. About one-fourth of the experienced employable persons on relief in rural areas reported their usual occupation as farming as compared with about one-tenth in the state as a whole.

Agricultural problems and relief problems are related, and other problems grow out of them—problems of importance to the whole of society. Some of the problems which are interrelated are as follows:

The index of the level of living that was worked out by the U. S. Department of Agriculture is based upon a family's possession of running water, furnace heat, electricity, an automobile, and similar advantages. Counties with a low relief rate had higher indices of living, and those with a high relief rate had lower ones. The range was very wide—from 3 for Pope county to 95 for Woodford county, the latter being one of the highest in the state.

The proportion of illiteracy was almost 4 times as great in the agricultural areas with lower incomes and poor soils as in contrasting areas. Since these counties had so few foreign-born people, the high illiteracy rate is probably a reflection of the lack of opportunity. Illiteracy rates were, of course, higher among people on relief than among people not on relief. Those who could not read and write were the ones who were also lacking in other abilities in general.

The greater incidence of physical disability in rural families on relief than in families in the state as a whole was emphasized in the study. The higher proportion of infant mortality in the poorer counties tends to emphasize the need for better health and more medical care. The provisions of the Social Security Act pertaining to maternal and child health recognize this need.

Counties with a high relief rate had somewhat higher proportions of children 14 to 16 years of age not in school. Children of relief families tended to quit school sooner than did others, as the figures taken from the study show. Library service is far less available for rural people than for those in towns and cities. But, the poorer rural counties were not much worse off than the better ones in this respect. Relief families were almost the last ones to take advantage of whatever library facilities were offered.

From one-third to almost three-fourths of the aged population of 6 of the poorer agricultural counties included in the study received old age assistance. In the 4 better counties, less than one-fourth received such aid.

More children are sent to correctional institutions from the poorer sections than from the better sections. The problem of delinquency, consequently, is more acute in the former areas. Facilities for caring for such children are inadequate or entirely lacking in some of these areas; hence, many commitments are made which could be handled without recourse to courts if better facilities were available. A recognition on the part of rural people, especially those on relief, that boys and girls do sometimes become delinquent in rural areas is important.

In general the poorer agricultural counties have more serious social problems than do the better counties. Certainly, the high relief rate is an indication of and doubtless a cause for these serious social conditions. Since the whole of

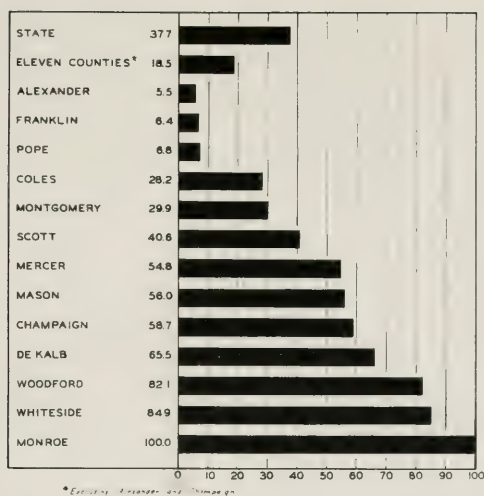


FIG. 2.—PERCENTAGE OF TOTAL OBLIGATIONS FOR POOR RELIEF INCURRED BY LOCAL UNITS, JANUARY TO DECEMBER, 1937 (ILLINOIS)

society is contributing so much to the alleviation of distress in these areas and since these areas contribute youth to the better areas, all the people should be concerned about how their conditions can be improved.

The cost as well as the effectiveness of relief administration is, of course, significant. The average monthly case loads and expenditures were studied for 11 of the 13 counties for the years 1934 to 1937. The 11 counties had an average monthly case load per county of 1,029 during the first 6 months of 1934. This amount increased to 1,954 during the first 6 months of 1937, the highest for the period included and an increase of almost 90 percent in the 3 years. Total expenditures for relief in the 11 counties increased from \$1,033,634 for the first 6 months of 1934 to \$2,834,271 for the first 6 months of 1937, an increase of 174 percent. The number of cases almost doubled during the period studied, but the expenditures almost tripled.

The extent to which local units were able to take care of their own relief is indicated in Figure 2. Counties and townships provided the general relief funds from local levies until July, 1936. The Illinois Emergency Relief Commission Fund came largely from federal sources until July, 1935, but after that date, state funds provided the largest part of the assistance. Blind pensions and mothers' pensions were paid from local and state funds. Old age assistance came from state and federal funds. Works Progress Administration and Farm Security Administration funds were entirely federal for the period studied.

Counties with low relief rates were able to pay a considerable part of the cost of their own relief and welfare work throughout the entire period. Some counties, however, such as Pope and Scott where the Illinois Emergency Relief Commission was responsible for the largest part of the load, had acute agricultural problems. Franklin and Montgomery counties had heavy loads because of the adverse conditions affecting the mining industry. The 11 counties provided only 18½ percent of the funds that they used as compared with 37½ percent for the state as a whole during the period from January to December, 1937. Some of the counties provided more than 50 percent of their load in 1937, and Monroe county provided 100 percent.

These situations led to the formulation of the following rather definite con-

clusions in connection with the rural relief situation in Illinois. The methods of administration have not improved as rapidly as the problems have grown. They have, rather, tended to progress very slowly and then only under the impetus of state and federal influences. The rural areas are now faced with the task of simplifying and modernizing relief administration. Methods must be devised to help the employable dependent become self-supporting and to insure the unemployable dependent a decent standard of living.

A wise combination of local, county, and state administration needs to be developed, and it should be based on a knowledge of the problems of the people and their circumstances and should use trained personnel that is adequately financed and exempt from political influence.

The administration of all the forms of relief needs to be coordinated and preferably reorganized into a single system which ties together federal, state, county, and local systems, on the one hand, and all categorical systems (those based on classes of relief) on the other hand.

The definite major responsibility for the making of policies needs to be put upon the local community. The local community should be responsible for as much of the financial support of relief as possible in order to secure local interest in the effectiveness of its administration. Citizens in local communities should be placed on policy-making boards that are free from political or partisan influences. These boards should have or be given a full knowledge of the problems involved and the most effective methods of handling them.

Those charged with relief administration should be properly trained and employed on the basis of their ability to administer efficiently and effectively. They should be responsible to the policy-making boards of the local communities. Their work in the various fields should be well integrated so that no duplication of aid is possible and so that no needy family is overlooked.

Units of administration smaller than the county can often be uneconomical and inefficient. County or larger units of administration should be organized where smaller units cannot be made to function competently and efficiently.

Complete and accurate records should be kept by all administrations, and they should be audited by accurate and responsible auditors periodically. Social and family information should be a part of the system of records in order to encourage the greatest possible number to become self-supporting and in order to keep members of dependent families from suffering through an inadequate diet or lack of medical care.

Funds for relief cannot come wholly from local sources in all areas. Since the heaviest relief loads are in the areas which have the lowest average incomes and the smallest amounts of taxable property, such areas are expected to need outside help. The problem of relief in the poorer areas is of concern to the whole of society. Since the burden of support comes ultimately out of some form of taxation, citizens should see that the system of taxation is fair and that a large part in the control of policy-making rests with the members of the community.

Rural families on relief are at a disadvantage. They have had fewer years of schooling; most of them are laborers in small towns and villages or are farm hands or tenants on poor farms; they suffer more from ill health; and in general, they are less capable than are their more fortunate fellows. It is not surprising, therefore, that their pride is easily broken, and that they seek the security of public aid and do not strive against the uncertainties of private enterprise.

The solution of the problem is exceedingly complex, for it is related not only to economic conditions—fertility of land, size of farm, returns to farm labor, family incomes from other sources, etc.—but also to social conditions—levels of living, illiteracy, health conditions, infant mortality, educational opportunities, juvenile delinquency, and similar conditions. A provision for mere sustenance is not enough for these people. They need adequate nourishment and medical

care, primarily, but they also need encouragement and guidance if they are to become self-supporting. In some cases, the usual inducements—higher wages in private enterprises—are not enough. The inducements must carry some assurance of security and an outlook for the future; they must be accompanied by adapted educational procedures to rehabilitate skills, develop a thirst for knowledge, rekindle initiative, and recreate self-respect. Greater care in these matters will doubtless be far less costly to society than would be poorly integrated methods which provide only for sustenance.

D. E. LINDSTROM

CHANGES IN LIVESTOCK PRODUCTION ON 2,847 ILLINOIS ACCOUNTING FARMS, 1940¹

Illinois accounting farmers had more milk cows, beef cows, feeder cattle, and fall pigs on their farms on January 1, 1941, than on January 1, 1940. On the other hand, they had less feeder lambs, brood sows, spring pigs, and summer pigs.

The following data indicate the percentage increases in livestock on accounting farms from the beginning to the end of the calendar years 1938, 1939, and 1940:

<i>Class of livestock</i>	<i>1938</i>	<i>1939</i>	<i>1940</i>
		<i>(percent)</i>	
Milk cows.....	0	2	3
Beef cows.....	3	21	10
Feeder cattle.....	7	17	12
Feeder lambs.....	0	24	-2
Brood sows.....	21	4	-2
Spring pigs.....	-14	38	-3
Summer pigs.....	-10	23	-2
Fall pigs.....	23	28	9

The following number of litters were farrowed per farm on Illinois accounting farms in 1939 and 1940:

<i>Time of farrow</i>	<i>1939</i>	<i>1940</i>
Spring.....	6.7	7.4
Summer.....	1.1	1.0
Fall.....	4.2	4.3
Total.....	12.0	12.7

Milk cows. On accounting farms, milk cows showed no increase in 1938, a 2-percent increase in 1939, and a 3-percent increase in 1940. In all the 9 major type-of-farming areas in Illinois, they showed an increase in 1940. In the United States as a whole, they showed an increase of 1 percent in 1939 and 2 percent in 1940.

Beef cattle. Beef cow numbers have been increasing on Illinois accounting farms for at least 3 years; the cattle cycle has been in the phase of increasing numbers since 1938. Illinois farmers are attempting to use the increased hay and pasture acreages which they have been producing through cooperation with the AAA programs. Beef cows showed a 3-percent increase in 1938, a 21-percent increase in 1939, and a 10-percent increase in 1940. Beef cow numbers increased in 1940 in all the areas except Area 1, the Chicago Dairy Area. The largest increases were in Areas 4, 5, and 8—the East Central Cash Grain Area, the West Central General Farming Area, and the Wabash Valley Grain and Livestock Area.

Feeder cattle increased 7 percent in 1938, 17 percent in 1939, and 12 percent in 1940. Feeder cattle numbers increased in all the farming-type areas except

¹The following analysis is based on inventories secured from farm account books that have been summarized by the Department of Agricultural Economics, University of Illinois, in the State-wide Extension Project and in the Farm Bureau Farm Management Service Project. The data were tabulated by farming-type areas, and state averages were calculated by weighting area averages by the number of census farms in the area. The percentage changes were calculated from beginning of the year and end of the year inventories for the same farms.

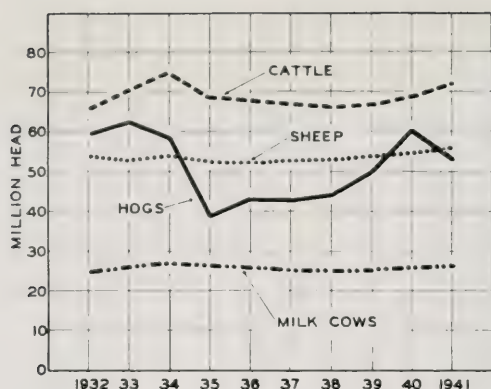


FIG. 1.—NUMBERS OF LIVESTOCK ON FARMS ON JANUARY 1, 1932 TO 1941

The numbers of all cattle have been increasing rapidly since 1938. This fact indicates that the decreasing phase of the last cattle cycle, from 1934 to 1938, was much shorter than usual. Milk cows have been increasing slowly since 1938, and sheep have been increasing since 1936. The sharp decline in hog numbers in 1940 interrupted an upswing which started in 1935.

Area 9, the Southern Illinois Fruit and Vegetable Area. The increases ranged from 2 percent in Area 1, the Chicago Dairy Area, to 23 percent in Area 6, the St. Louis Dairy and Wheat Area.

Feeder lambs. Two percent less feeder lambs were found on accounting farms at the end of 1940 than at the beginning. Of the 2,847 farms included in the tabulation, only 79 had feeder lambs on January 1, 1940, and 78 on January 1, 1941. In the United States as a whole, 2.6 percent more stock sheep and feeder lambs were found on farms at the end of 1940 than at the beginning. This change is typical of the slow but steady increase that has been under way since 1936.

Hogs. Illinois accounting farmers had 2 percent less sows on hand on January 1, 1941, than a year earlier. This percentage does not check very accurately with the December pig crop report which indicated that Illinois farmers planned to have 11 percent less sows to farrow in the spring of 1941 than in the spring of 1940.

Data from the accounting farms indicate that more litters were farrowed in 1940 than in 1939; whereas, the pig crop report indicates that 3 percent less pigs were saved in the spring of 1940 and 5 percent less in the fall of 1940 than in corresponding periods of 1939. The accounting records also show 9 percent more fall pigs on farms on January 1, 1940, than on January 1, 1939.

The age of sows shifted very little in 1940. Fifty-two percent of all the sows on accounting farms on January 1, 1940, were gilts, and 51 percent on January 1, 1941, were gilts.

Changes in the number of hogs on farms are influenced by the season of the year in which the hogs are marketed. A large percentage of spring pigs are normally marketed from October through February. The following data indicate that a larger-than-usual percentage of the 1939 spring pigs were marketed after January 1, 1940, and of the 1940 spring pigs before January 1, 1941. The inspected hog slaughter for 5-month periods ending February, 1940 and 1941 was as follows:

	Oct.	Nov.	Dec.	Jan.	Feb.	Total	Percent 1941 was of 1940
5 months ending Feb., 1940...	3 545	4 437	5 236	5 356	4 277	22 851	...
5 months ending Feb., 1941...	4 483	5 419	6 063	4 517	3 725	24 207	106

TABLE 1.—NUMBERS OF LIVESTOCK ON FARMS IN THE UNITED STATES AS OF JANUARY 1
(Thousand head)

Class of livestock	Average 1930-39	1939	1940	1941
Milk cows.....	25 104	25 088	25 397	25 917
Cattle.....	67 041	66 789	68 801	71 666
Sheep.....	52 878	53 783	54 549	55 880
Hogs.....	50 871	49 293	60 207	52 983
Horses and mules.....	16 951	15 199	14 911	14 602
Chickens.....	424 414	412 604	429 042	413 934
Turkeys.....	5 964	6 418	8 567	7 030

The U. S. spring pig crop of 1940 was 9 percent smaller than was that of 1939; yet, the inspected slaughter of hogs from October, 1940, through February, 1941, was 6 percent larger than was that from October, 1939, through February, 1940, and the slaughter was 7 percent larger for the 8-month period ending February, 1941, than for the 8-month period ending February, 1940.

If Illinois accounting farmers had followed this pattern of marketing, they would have had a larger decrease in spring pigs on hand January 1, 1941, than the data indicated.

Two inferences are possible: (1) the accounting farmers have not reacted to recent economic conditions as have the majority of farmers or (2) all the farmers in Illinois raised more hogs in 1940 than the pig crop reports indicate. It seems quite logical that accounting farmers should produce hogs on a different basis than does the average of all the farmers in the state. The former are known to have larger-than-average farms, higher-than-average crop yields, more-than-average amounts of livestock and to produce livestock with greater-than-average efficiency. It is also logical to assume that they use economic information to adjust their production to fit economic conditions. The increase in the number of 1940 fall pigs would be a desirable adjustment since the price ratio between hogs and corn will be favorable when these hogs are marketed.

Changes in feed supplies and livestock numbers in the United States. Livestock numbers change in response to variations in feed supplies and feeding ratios. Total feed supplies per animal unit have been at high levels since 1937, and the numbers of cattle and sheep have been increasing (Table 1). The number of hogs increased sharply from 1935 to January 1, 1940, but declined sharply from January 1, 1940, to January 1, 1941. During 1940, the hog-corn ratio was unfavorable for feeding since the price of corn was maintained by the loan program and since hog marketings were large during a period when the volume of industrial production was much below the present level.

On October 1, 1940, 695 million bushels of corn were carried over, and present indications point to a carryover of almost 800 million bushels for October 1, 1941. On January 1, 1940, the United States supply of corn was 2,005 million bushels, which was much larger than the 1928-32 average. Supplies of oats, barley, and grain sorghums are all considerably larger than they were a year ago; consequently, the supply per animal of all grains is considerably larger this year than last, especially since grain-consuming animal units have been reduced.

Because of the sharp decline in the number of hogs, the composite grain-consuming animal units decreased about 4 percent from January 1, 1940, to January 1, 1941. The composite number, expressed in terms of hay and pasture consuming animal units, increased about 2.5 percent (such a number omits hogs entirely). The hog-corn ratio on the basis of Chicago prices averaged 10.2 for December, 1940, but increased to 12.4 for February, 1941. However, the im-

provement in the ratio came too late to influence the number of sows which will farrow in the spring of 1941, but it may increase somewhat the number of summer and fall pigs. Illinois accounting farmers did not decrease their hog production in 1940 below that of 1939, and they had only 2 percent less sows available for farrow in the spring of 1941 than in the spring of 1940. This fact indicates that they may have followed outlook reports which predicted higher hog prices for 1941 as a result of decreased hog marketings and an increase in demand.

P. E. JOHNSTON

FACTORS INFLUENCING LAND USE IN VERMILION COUNTY¹

The increased interest in soil conservation during the past ten years has focused a great deal of attention on land use, land-use planning, and the many interlocking and complex problems associated with them. A recent study examined the influence of some of the various factors on land use on 512 mortgaged farms² in Vermilion county, Illinois, and made a special attempt to determine the effect of the size of debt burden upon the land-use program on individual farms.³ The relationships between land use and other factors, such as soil quality, topography, and tenure, were also considered. Unless otherwise specified, the land-use relationships refer to the year 1935.

Soil quality. Land use differed somewhat among the farms, according to the quality of the soils. The farms which were indicated by the average corn yield and average soil productivity index to be the upper third in productiveness had, on the average, 15 percent more of their total area in cropland than did the group which included the lower third of the farms. Thus, a smaller proportion of the land was available for crop production on the farms which had the least productive soils. In this county, soil quality and topography are positively associated, and the more rolling the land, the less the available cropland. In 1935, the most productive farms had, on the average, 1.9 percent more of their cropland in corn and 2.2 percent more in wheat than did the least productive farms. These differences are not large enough to be significant. The proportion of cropland in oats showed a definite and regular tendency to be less on the least productive soils (10.3 percent less on the low third than on the high third), and soybeans accounted for 6.5 percent more of the cropland on the poor farms than on the good farms. The percent of cropland devoted to all soil-depleting crops decreased somewhat with soil quality, the decrease being most noticeable between the good and fair grade of soil. The proportion of cropland in hay and rotation pasture averaged 4.1 percent less on the farms on good soil than on the farms on only fair soil, but the farms on fair and poor grades of soil showed practically no difference in this respect. As would be expected, the proportion of wasteland increased as the soil quality decreased.

Topography. On the whole the differences in land use in 1935 were not great among farms on level, undulating, and rolling land. When the farms were grouped by topography, the average percent of cropland in corn, wheat, oats, and total soil-depleting crops was smaller as the land became more rolling. The proportion of land in cropland averaged 80.1, 80.9, and 69.0 percent for the level, undulating, and rolling farms, respectively, indicating very little difference on the two more level classes of land but showing a considerable decrease between them and the rolling land.

As mentioned previously, topography and soil quality are closely associated.

¹This article is the second in a series of summary reports on the relationship of credit and land use. The first, "Mortgage Debt and Land Use in Cumberland County," was in the July, 1940 issue of *Illinois Farm Economics*.

²Farms on which mortgages were not past due at the time the study was made.

³Land-use information on these farms was secured from AAA records for all the farms in 1935 and for AAA cooperators in 1939.

Of the 329 farms for which a topography rating was available, only two farms classed as rolling were found to be on a good grade of land. The rolling farms had larger proportions of land in timber pasture, plowable pasture, and wasteland as well as a larger percent of cropland in hay and rotation pasture, than did the more level farms. Thus, the operators on the rolling land followed a more soil-conserving system of farming than did those on the more level land, even in 1935 when the AAA was just getting under way.

Type of tenure. Of the 512 mortgaged farms included in the study, 279 were operated by owners, 221 by tenants, and 12 by a combination of the two. Within each tenure group, the farms on different grades of land showed no apparent significant differences in the proportion of cropland in corn; however, the tenant farmers on each grade of land tended to have a higher proportion in this grain crop. The differences between the tenant-operated farms and owner-operated farms were 8.8, 4.9, and 7.1 percent for the good, fair, and poor grades of land, respectively. The tenant-operated farms had a lower percent of cropland in wheat than did the owner-operated farms; and, on all except the fair grade of soil, they had a larger percent of cropland in soybeans harvested for grain. On all three grades of land, the proportion of cropland in the combined acreage of soil-depleting crops was higher on the tenant-operated farms. This fact, together with the smaller percent in hay and rotation pasture and the lower yields in corn on comparable grades of land for tenant-operated farms than for owner-operated farms, indicates that the tenant-operated farms were cropped more heavily than were the owner-operated ones.

Size of debt burden. The average size of debt per acre for the 398 farms for which complete debt information was obtained was \$57, and the average appraised value at the time the loan was closed was \$123, giving a loan ratio of 47 percent. The size of debt per acre varied directly with soil productivity and indicated a tendency for the better lands to be more heavily mortgaged. The average loan ratio, however, increased slightly as the soil quality became lower.

Thus, on loans closed before 1934, the loans per acre mortgaged on good, fair, and poor soils averaged \$62, \$64, and \$50, respectively, and the loan ratios were 36.9, 41.3, and 41.0, respectively. On loans closed after 1934, the loans per acre mortgaged averaged \$65, \$56, and \$43, for the respective soil classes, and the loan ratios were 50.2, 52.8, and 53.7, respectively.

Greater differences were made in the amount loaned per acre on the different qualities of land after 1934 than before that date. The practice in the later period more nearly recognized the large differences in the inherent value of these different lands. Proper differentiation in the value of land is a first step in making intelligent land-use policies possible, and credit agencies in this area, at least since 1934, have followed loan policies which will tend toward such differentiation.

No marked differences were noted in land use in 1935 in the different debt groups on farms with similar soil quality. However, the percent of cropland in wheat showed a definite tendency to be less in the higher debt groups and that in soybeans showed a definite tendency to be more. The percent in total soil-depleting crops tended to increase, and the percent in hay and rotation pasture tended to decline, particularly on the poor soils. However, these differences are less significant than are those related to soils and to tenure.

Location. The farms which are south of the Bloomington moraine are on somewhat better land and had an average debt of \$3.40 more per acre of land mortgaged and an average debt of \$2 more per acre of land farmed than did the farms which are north of the southern edge of the moraine. One reason for these relatively small differences was the failure of the earlier appraisers to recognize the differences in productiveness among these various soil types found in the two

areas. This failure to appraise the land properly resulted in farms in the northern half of the county being mortgaged more heavily as compared to their productive power than were the farms in the southern half.

An analysis of the land use in 1935 in the two sections indicated a slightly larger average percent of cropland in the northern half of Vermilion county than in the southern half. The farms in the northern section had a larger percent of cropland in corn and soybeans for grain and a somewhat lower percent of cropland in wheat and oats than did those in the southern section. The two sections showed no significant differences in the average proportion of cropland in soil-depleting crops, cropland not harvested, or hay and rotation pasture. The differences between these two areas would indicate a tendency for the section with the largest debt burden per acre as compared to its productive capacity—that is, the northern section—to have more corn and soybeans, decidedly less wheat, and somewhat less oats than would the section with the smallest debt burden. The similarity between the average percent of cropland in all soil-depleting crops in the two areas does not indicate a great tendency to put more land in soil-depleting crops as the weight of the debt burden increased but rather to shift from one kind of soil-depleting crop to another. It also indicates a tendency for the more heavily indebted area to have a larger percent of cropland in corn and soybeans harvested for grain, the two highest profit crops in that section.

Indicated relationships in 1939. By 1939 the picture had changed somewhat. The farms in the northern part of the county still had a larger percent of cropland in corn and a smaller percent in wheat, but the proportion of cropland in oats and soybeans had changed so that the more productive southern section had a larger percent of soybeans and a smaller percent of oats. The AAA program had also caused an adjustment in the percent of total soil-depleting crops so that the farms in the southern area exceeded those in the northern area in that respect.

Summary. From this study (1) soil quality as associated with topography, (2) type of tenure, and (3) the AAA program were more important in influencing differences in land use among farms in Vermilion county in the period studied than was the size of debt burden.

The farms on the more fertile soil and the more level topography had a larger percent of their land in cropland, a higher percent of that cropland in the various soil-depleting crops, a lower percent in crops not harvested, and a lower percent in hay and rotation pasture. Farms on the more rolling topography followed a somewhat less intensive system of farming than did those on the more level land.

The tenant-operated farms were definitely cropped more heavily than were the owner-operated ones. This situation reflects the greater pressure for tenant-operated farms to intensify. The tenant desires more high-profit crops in order to meet his farm and family expenses and to earn a surplus, and the landlord wants a satisfactory rent.

The farms which were carrying the highest debt burden tended to have a larger proportion of their cropland in the more intensive higher profit crops, such as corn and soybeans, and a somewhat lower percent of their cropland in oats and wheat, crops not harvested, and hay and rotation pasture. This was especially true for the tenant-operated farms. In some cases, the farms with the highest debt ratios tended to have more soil-depleting crops; but, in most cases, the proportion of cropland in those crops was so high (up to 97.1 percent in 1935) that there was little room for an increase. Therefore, the desire to obtain more money from crop production had to be accomplished by shifting from one crop to another rather than by increasing the total acreage.

On cooperating farms, the AAA program has resulted in a decrease in the percent of cropland in soil-depleting crops and an increase in the proportion devoted to the production of legumes and other soil-conserving crops.

N. L. SMITH and L. J. NORTON

AN ANALYSIS OF ILLINOIS LEGISLATION RELATIVE TO THE CONSOLIDATION OF POLITICAL UNITS

Illinois law provides for the organization of at least 17 kinds of local governmental units or districts characterized as public corporations. All these units, except soil conservation districts, have the power to tax.

Of this number, the following 7 have been given the power to consolidate:

Municipalities (special law for the city of Chicago)	School districts
Counties	Road districts
Townships	Drainage districts
	Park districts

The following 10 have not been given that power:

Public health districts	Forest preserve districts
Sanitary districts	Mosquito abatement districts
Wildlife districts	River conservancy districts
Soil conservation districts	Fire protection districts
Water districts	Tuberculosis sanitarium districts

Theoretically, no reason can be given for these ten not having the power to consolidate. Practically, the two groups have a substantial difference: The group with the power contains units which are, for the most part, in close proximity—for example, the state is completely covered with counties, and drainage districts adjoin each other over large areas. Furthermore, all the units in this group are active and are of general importance; whereas, many of those in the second group are used on a limited scale. However, as a matter of long-time policy, consolidation provisions could well be written into the laws creating each of these units, and some uniformity in the method of consolidation could well be provided. The accompanying table (pages 496-499) presents a comparison of the present procedures on consolidation.

Conclusions. Merging is an important and familiar procedure in business and industry. Corporations that are unable to exist alone have frequently been saved, or at least salvaged, by combining with another organization. Reduction of overhead and administrative personnel, more efficient use of equipment, greater bargaining power, increased flexibility of operating plans, wider range of investment and financing opportunities, and many other advantages result from the successful merger of two or more independent businesses.

Units of government may find that, when circumstances warrant, consolidation will gain similar advantages for them. Some political units always have been inefficient. Inadequate size, population, and property values are the primary faults. Counties unable to support public buildings, townships unable to afford adequate road machinery, and school districts unable to finance adequate improvement, conveniences, and instruction exemplify problems which consolidation would, in a measure, solve. Local sentiment regarding long-established political units, entrenched officers and personnel, lack of familiarity with the consolidation laws, insistence that consolidation destroys local self-government, inadequate and complicated laws, and insufficient facts have all retarded the combination of political units. In the future, more attention will have to be given to the problem of consolidation. To that end, an adequate research program that will provide facts with which to work needs to be developed.

H. W. HANNAH

PROVISIONS ON CONSOLIDATION

Unit	Conditions	Initiation of proceedings	Petition	Voting	Officers	Debts and assets
<p><i>Municipalities</i>^a</p> <p>1. Act of April 25, 1889, and amendments (Ill. Rev. St. 1939, Ch. 24, Sec. 386-410) providing for annexation of adjoining municipalities.^b</p>	Must be a city, village, or incorporated town adjoining another in one or more portions of its boundaries.	By 250 legal voters in the municipality desiring to be annexed—or by one-third of the voters, if less than 500 voted at the last general election—by petition.	To county judge asking for submission to vote in each municipality at a regular or special election.	Majority of voters in each municipality must favor. If proposition fails, 2 years must elapse before another election. Subsequent petition can be made by one-eighth of voters of municipality seeking to be annexed.	Shall continue in office until the next regular election. Policemen and firemen are transferred to the annexing city.	The annexing municipality assumes all debts and obligations. All property of the annexed municipality vests in it also.
<p>2. Act of June 29, 1915 (Ill. Rev. St. 1939, Ch. 24, Sec. 321-339) providing for union of contiguous municipalities.</p>	Two or more incorporated contiguous cities, incorporated towns or villages situated in one county.	Same as above except that voters in <i>each</i> unit must sign the petition as required above.	Same as above except that petition must include the name of the proposed united area and specify the kind of government (aldermanic or commission).	Majority of voters in each municipality must favor.	Same as above.	Same as above.

a. bSee page 499 for footnotes.

Counties

Act of May 31, 1879 (Ill. Rev. St. Ch. 34, Sec. 68-88).

Counties must adjoin.

By 200 legal voters of the county desiring to unite, one-half of which are freeholders, by petition.

To the county boards of their county and of the adjoining county asking to have the counties united. The question is submitted to vote. May petition only once in 5 years.

Majority of votes cast in each county must favor. Governor by proclamation declares counties united.

Hold until terms expire.^c Files are then moved to the annexing county. Township officers are not affected unless townships are abandoned due to adjoining county not being under township organization.

Adjoining county is not liable for debts of petitioning county unless voters of adjoining county vote to consolidate the debts.

Townships

Act of March 4, 1874, as revised (Ill. Rev. St. Ch. 139, Sec. 36).

Must be contiguous—two or more townships.

By one-fourth of legal voters in each township concerned—by petition.

To county board of supervisors asking for an election on the question.

Majority of votes cast in each township must favor. County board may then unite them.

Hold until terms expire.

Are adjusted by the officers of the townships.

Schools

1. Acts of 1909, 1917, 1927, and 1929, relative to the changing of the boundaries of school districts by the trustees of schools (Ill. Rev. St. Ch. 122, Sec. 46, 130^d).

Districts must be situated wholly within the same township. (Applies to all kinds of districts—elementary, consolidated, township high school, community high school, and non-high school.)

By a petition from the legal voters in each district.

Is directed to trustees of school for the township—must be signed by a majority of the legal voters in each district to be consolidated.

Not required.^e Trustees may proceed to consolidate after petition—at any semi-annual meeting or special meeting called for the purpose.

No specific provisions.

No specific provisions.

c, d. ^eSee page 499 for footnotes.

PROVISIONS ON CONSOLIDATION (Concluded)

Unit	Conditions	Initiation of proceedings	Petition	Voting	Officers	Debts and assets
2. Acts of 1909, 1919, and 1923 relative to community consolidated school districts (Ill. Rev. St. Ch. 122, Sec. 85).	"Any contiguous territory bounded by school district lines may be organized into a community consolidated school district."	By petition from legal voters in the district.	Twenty percent of voters must petition. County superintendent submits issue to vote.	A majority must vote in favor of consolidation. (Additional districts may be added subsequently by petition and vote.)	No specific provisions.	No specific provisions.
3. Act of July 2, 1935, relative to the consolidation of high school districts (Ill. Rev. St. Ch. 122, Sec. 363a).	"Any two or more high school districts may be consolidated—in accordance with the provisions of this act."	By petition from each district.	Fifty or more legal voters must sign each petition.	A majority of the votes cast in each district is necessary.	No specific provisions.	No specific provisions.
<i>Drainage Districts</i> Law of May 9, 1929 (Ill. Rev. St. Ch. 42, Sec. 172-173).	Districts must be contiguous.	By petition to county clerk of county in which most of the land is situated.	Signed by one-tenth of landowners in proposed consolidated area, owning one-fifth of land in each district. Must specify advantages of consolidation, proposed boundaries, ditches, levees, and a description of proposed work.	Not required. ^f	No special provisions.	Debts of each district must be settled from funds belonging to the district or by assessment of land in indebted district.

^fSee page 499 for footnote.

Road Districts

(Counties not under township organization) Law of June 27, 1913 (Ill. Rev. St. Ch. 121, Sec. 47).

"The Board of County Commissioners of each county (not under township organization) shall have full and complete power and jurisdiction to alter the boundaries of road districts, to change road district lines and create new districts." Notice of action necessary.

By petition.

Must be signed by 20 petitioners.

Not required.

No special provisions.

No special provisions.

Park Districts

Law of June 29, 1931 (Ill. Rev. St. Ch. 105, Sec. 293d).

Districts must be within the same city, village, or incorporated town and in the same county.

By petition.

Signed by 5% of the legal voters in the districts.

Majority necessary in each district. If carried, one district is annexed to the other.

Term of office of officers of the annexed district terminates upon annexation.

No special provisions.

^aIn 1915 [June 25], Ill. Rev. St. Ch. 24, Sec. 208-264], there was passed "An Act to consolidate in the government of the City of Chicago the powers and functions now vested in local governments and authorities within the territory of said city and to make provisions covering the same." Article VIII, Sec. 1 of the Act provided that the plan should be submitted to the legal voters of "the City of Chicago and the legal voters of the several towns or townships, parks or park districts, or other local governments and authorities hereby sought to be consolidated." It was submitted to the voters on Nov. 7, 1916, and failed of adoption. It may be resubmitted, but to date has not been.

^bThis law also provides for the annexation of the whole of or part of a municipality within a municipality, to a different municipality. The provisions are generally similar.

^cThe law specifies in detail what various officers shall do.

^dAnother act provides that when a fractional congressional township contains fewer than 200 persons under 21, the trustees of schools, upon petition of a majority of the adult inhabitants, may by written agreement with the trustees of an adjacent township, consolidate the territory, school funds, and other property. (1909, June 12). Also, when a new township is created from two or more congressional townships, the new township shall be a school township for school purposes (1929, June 17), Ill. Rev. St., Ch. 122, Sec. 19.

^eIn *People v. Board of Education of Paris Union School District* (255 Ill. 568, 99 N. E. 659) the court said that the legislature may create or divide school townships or school funds in its discretion. The legislature has complete control over school townships.

^fThe law also provides that in lieu of a petition from a majority of the voters, the issue may be submitted to vote.

^gThe County Judge calls a hearing and if he finds that: (a) the petition is properly signed and executed; (b) landowners owning one-half of the land favor consolidation; (c) the districts are contiguous; (d) consolidation will be beneficial, he declares the old districts dissolved and the new one formed.

TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural income ⁸	Factory payrolls ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. In money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period.....	1926	1926	1924-29	1924-29	1924-29	1924-29	1924-29	1924-29	1923-25	1935-39
1929.....	95	105	104	99	103	103	104	107	110	110
1930.....	86	88	89	94	83	87	93	100	89	91
1931.....	73	65	62	80	58	58	72	87	68	75
1932.....	65	48	41	69	43	43	62	68	47	58
1933.....	66	51	45	71	49	51	72	63	50	69
1934.....	75	65	61	80	57	55	69	72	64	75
1935.....	80	79	82	81	64	65	80	77	74	87
1936.....	81	81	86	80	74	82	103	90	86	103
1937.....	86	86	96	84	80	87	103	95	102	113
1938.....	79	69	69	80	72	81	101	88	78	88
1939.....	77	65	65	78	72	81	97	93	92	108
1940.....	78	68	69	79	78	...	113	...	105	122 ¹¹
1940 Jan.....	79	69	68	79	79	100	126	97	100	122
Feb.....	79	68	67	79	83	100	126	96	99	116
Mar.....	78	68	66	79	76	98	124	96	100	113
Apr.....	79	69	67	80	82	76	96	95	98	111
May.....	78	68	69	80	80	90	112	96	98	115
June.....	78	66	65	80	70	71	89	97	100	121
July.....	78	66	67	79	71	72	90	98	98	121
Aug.....	77	66	69	79	71	80	101	99	106	121
Sept.....	78	66	72	79	76	84	106	100	112	125
Oct.....	79	66	72	79	80	98	124	100	116	129
Nov.....	80	68	73	79	80	101	128	102	116	132
Dec.....	80	70	74	79	86	105	131	103 ¹¹	122	138
1941 Jan.....	80 ¹¹	72	78	80	86 ¹¹	...	...	...	120 ¹¹	139
Feb.....	80 ¹¹	71 ¹¹	76 ¹¹	80	...	...	...	...	...	141 ¹¹

TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS¹²

Product	Calendar year average			February 1940	Current months		
	1924-29	1939	1940		December	January	February
Corn, bu.....	\$.81	\$.43	\$.56	\$.51	\$.52	\$.54	\$.54
Oats, bu.....	.42	.28	.32	.37	.33	.34	.33
Wheat, bu.....	1.30	.67	.81	.91	.79	.81	.76
Barley, bu.....	.66	.41	.46	.48	.49	.49	.48
Soybeans, bu.....	1.94	.74	.82	.94	.81	.91	.83
Hogs, cwt.....	9.97	6.56	5.54	5.00	5.80	7.70	7.50
Beef cattle, cwt.....	8.57	8.18	8.84	8.10	9.80	10.40	9.90
Lams, cwt.....	12.22	8.18	8.52	8.20	8.80	9.00	9.20
Milk cows, head.....	78.00	63.00	65.00	63.00	68.00	70.00	73.00
Veal calves, cwt.....	11.27	9.15	9.63	9.70	10.20	10.80	11.40
Sheep, cwt.....	6.52	3.44	3.44	3.75	3.45	3.95	4.20
Butterfat, lb.....	.42	.23	.27	.28	.34	.29	.28
Milk, cwt.....	2.32	1.59	1.67	1.70	2.00	1.80	1.75
Eggs, doz.....	.30	.16	.17	.20	.26	.17	.14
Chickens, lb.....	.21	.13	.13	.12	.13	.14	.14
Wool, lb.....	.36	.25	.30	.29	.34	.33	.33
Apples, bu.....	1.59	1.07	1.14	1.05	1.20	1.20	1.20
Hay, ton.....	13.88	6.05	6.68	6.60	7.30	8.20	8.20
Potatoes, bu.....	1.39	.80	.83	.90	.70	.75	.75

¹⁻¹²For sources of data in tables see previous issue.

Cooperative Extension Work in Agriculture and Home Economics: University of Illinois, College of Agriculture, and the United States Department of Agriculture cooperating. H. P. Rusk, Director. Acts approved by Congress May 8 and June 30, 1914.

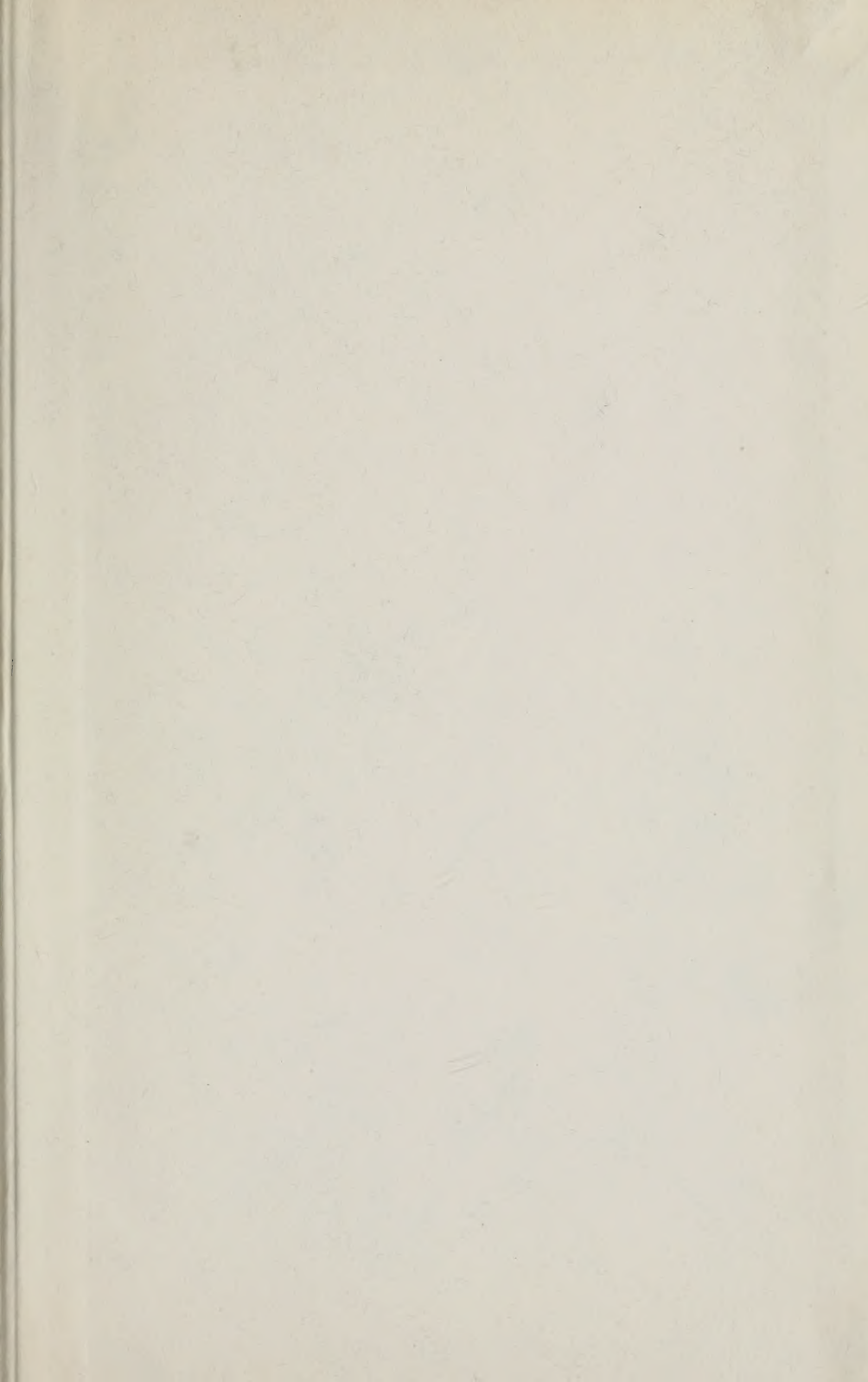
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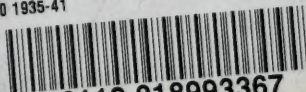


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